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REVIEW OF NEW BOOKS.

The Despatches, Minutes, and Correspondence of the Marquess of Wellesley, K.G., during his Administration in India. Edited by Montgomery Martin. Vol. V. London, 1837. Allen and Co.

THIS supplementary volume completes one of the most valuable and remarkable works of our time. It is remarkable as the history of a most remarkable period, and of a most remarkable man. Ordinary events and ordinary men seem to go together; they act from precedent, and for a little while every thing proceeds with the most quiet regularity. Suddenly unlooked-for events alter the whole face of affairs; nothing is as it was; change becomes indispensable; yet no one is prepared for that change; all is hesitation and fear, for there is the emergency; but who is to meet it? It is at such an epoch that the full value of a man like the Marquess of Wellesley is felt. The history of his rule in India is the history of a master mind, commanding and foreseeing, ready for every difficulty, and encountering obstacles only to overcome them. How accurate was his estimate of the crooked policy of Tippoo Sultan! how borne out by the correspondence now before us! One thing cannot but strike even the most careless reader of these pages, which is, that let the subject be what it will, how entire and comprehensive is the view taken of it by the Marquess of Wellesley; at once profound in its analysis and extensive in its bearings. Another merit, one which a literary journal cannot but appreciate, is the admirable style: any one of these letters might be taken for a model in composition. Many of the subjects which these despatches illustrate require far more space than our columns can give to their discussion. We, however, select one which bears immediately upon a subject now the matter of public discussion, namely, the communication with the Red Sea.

"Previously to the mission of Captain Wilson from Bombay, no intercourse of a political nature extending beyond the interchange of complimentary letters, had subsisted between the British government in India and the Arabian states. The extent of the trade between Arabia and the ports of India has for many years been inconsiderable. The British government in India being thus entirely unconnected with the states of Arabia, has possessed no opportunity of acquiring an intimate knowledge of the political relations, or of the commercial interests, of those states: I am not, therefore, prepared to enter into a detail of the particular concessions, either of a political or of a commercial nature, which any of the states of Arabia would be disposed to receive, or which I should be inclined to afford, in return for the important advantages which it is our object to attain. The information which you will acquire after your return to the Red Sea, will enable you to ascertain in what manner a political connexion with the British government in India may be rendered conducive to the interests of any or of all the Arabian states, and what engagements of a commercial nature would be calculated to ensure any essential advantages to the commercial interests of those countries. At present I must content myself with soliciting your attention to the general considerations which appear to me to affect this part of the question. The promise of our protection against any attempt on the part of France to violate the independence of the Arab states might be deemed an advantage, for which those states would be disposed to pay a valuable consideration. But if the British arms should be completely successful in effecting the expulsion of the French from Egypt, any apprehension which the Arab chiefs may hitherto have entertained of the future attempts of France may have ceased. It may, therefore, be advisable that you should endeavour to remove any such sentiments of false security, and to excite in the Arab chiefs a solicitude to obtain the protection of the British power against France. Such an offer on our part may lead to correspondent concessions on the part of the Arabs. It may be suggested that, although the favourite project of France to effect a permanent establishment in Egypt, and to extend her dominion over the countries adjacent to the Arabian Gulf, has been happily frustrated by the power and skill of the British army, the French will not, therefore, be induced to abandon this primary object of their ambition. Frustrated in their attempts to maintain themselves in Egypt, they may hereafter resume the enterprise which they have frequently formed of making a descent on the coasts of the Red Sea; in this event, that part of the coast which is under the dominion of the Imaum of Senna will probably become the first point of attack. It is, therefore, the interest of the imaum to provide, in the most effectual manner, for the possibility of this event, by cultivating a connexion with the British power, and by securing the co-operation of the British arms. While the British power shall hold Egypt, although no immediate danger may be apprehended by the Arab chiefs from any designs of France, it must be an object of the policy of those chiefs to cultivate the favour of a power which has possessed itself of Egypt, under every circumstance calculated to inspire confidence in its good faith, and respect for its vigour, energy, and military skill. Even after the British army shall have evacuated Egypt, and shall have delivered it over to the porte (if such an adjustment shall be the termination of the war in Egypt), it may be expected that the fame and character of the British empire will be so elevated in that quarter of the globe, as to render the chiefs of Arabia and all the neighbouring states desirous of improving their relations with our government, and of entering with us into political and commercial engagements, founded on liberal and just principles of mutual interest and security. Should the political situation of the government of Senna, or the condition of its internal affairs, or that of any Arab state in the gulf, be such as to expose the imaum or chief to the hazard of external attack or internal commotion, this state of circumstances will afford an additional ground for the conclusion of defensive engagements. Whatever exigency may induce the imaum or chief to desire the protection of the British power, will facilitate the attainment of the primary objects of your mission. In offering these suggestions, however, it is proper to state my decided opinion, that we should abstain from any mixture in such political intrigues as may be connected with any design of subverting the established government, of effecting revolutions in the state, or of endangering the life or power of any reigning chieftain. The symptoms of such a disposition on our part, would tend to create jealousies and suspicions, of which the effect might be felt beyond the limits of any interest which we might hope to establish in Arabia, while all our views in that quarter would certainly be defeated by the unjustifiable means employed to accomplish them. This observation applies peculiarly to Mecca, where the state of the present shereef's power renders it more especially necessary to use every degree of caution with regard to any interference in the internal affairs of the country. The co-operation of a British force, or of any public officer of the British government, in any revolution at Mecca, would undoubtedly create the strongest sentiments of indignation and disgust in the mind of the grand signior, and would irritate every mussulman state in India. You will observe from the preceding remarks, that in my judgment the first general proposition from the offer of which we may expect to derive concessions of the nature desired by the secret committee, from the chiefs of Arabia, is the engagement to afford the protection and countenance of the British power to the established governments of those countries. The nature and extent of the protection to be offered to those chiefs from the government of India, must be left to your discretion, subjecting any engagement which you may conclude to the ratification of the governor-general in council. In concluding any treaty of a subsidiary or defensive nature, you will endeavour to limit the guarantee to the case of an attack from France, and in no case will you enter into engagements to protect any Arab state against the authority of the Ottoman porte. The particular concessions of a commercial nature, which it may be the wish of the Imaum of Senna or of any Arab chief to obtain, and which it may be consistent with the commercial interests of the Company to grant, cannot be precisely ascertained, without a more perfect knowledge than we at present possess of the nature and extent of the trade between Senna, the Arabian Gulf generally, and the ports of India. I am disposed to grant considerable privileges and immunities in favour of Arabian ships and merchants frequenting the British ports in India; to abate or relinquish the duties upon imports from that country; and to engage to take a certain quantity of coffee, the staple commodity of Senna, annually; to allow the Arabian merchants to export from the ports of India to Arabia, to a certain extent, any of the articles, the produce of the British empire in India, of which the export from India is now prohibited; to supply the imaum, or any other Arab power, with broad cloth, iron, &c. the produce or manufacture of Europe, and with military and naval stores; to supply the Arab powers with ship-builders, or to construct ships for them in our docks, the

imaum or chief defraying the actual cost. You will be guided by your own judgment and discretion, and by the actual state of circumstances, in applying these general suggestions, which are applicable not only to Senna, but to all other Arab states on the coasts of the Red Sea. Whatever commercial engagements you may contract with the Imaum of Senna, or with any other of the Arab states, will be subject to the ratification of the governor-general in council. Whatever be the relation which the states of Arabia may bear towards the porte, I deem it highly expedient that his majesty's ambassador at the court of Constantinople should be enabled eventually to communicate to the grand signior the object, extent, and progress of your negotiations with the chiefs of Arabia; I shall, therefore, transmit a copy of this despatch to the Earl of Elgin, by the present overland despatch, and I request that you will avail yourself of every opportunity to communicate to his lordship the progress of your negotiation. With regard to the mode of conducting the negotiations intrusted to your charge, I am of opinion that you should be careful to impress the minds of the several chiefs of Arabia with due respect for the dignity of your situation, as the representative of the British nation; a character which, in my judgment, entitles you to claim the privilege of negotiating upon terms of equality with the Imaum of Senna, the Shereef of Mecca, or any of the Arab chiefs. I am apprehensive that your proceeding in person to Senna, or to the residence of any chief in Arabia, situated in the interior of the country, might tend to lessen the importance of your character in the opinion of the Arabs, and might, therefore, prove injurious to the success of the negotiation. My judgment on this question arises from the knowledge that the several chieftains of Arabia, however independent with respect to power and authority, are considered to be officers of the Turkish empire, and to derive their rank and appointments from the grand signior. They are not, therefore, to be acknowledged as sovereign princes; any such acknowledgment on your part (according to the uniform disposition and character of every Eastern court), would infallibly weaken your influence, and increase the insolence and arrogance of the power with which you are to negotiate. Unless, therefore, the Imaum of Senna, or his minister, should proceed to Mocha, or unless a personal meeting with the imaum should appear to you to be expedient—in which case you might require that the imaum should leave his capital, and should advance a considerable way for the purpose of meeting you—I would recommend it to you to conduct your negotiation through the channel of a secretary to your mission. The Eastern nations are so much influenced by exterior forms, that the greatest attention is requisite to points of ceremony and appearance. Any concessions in points of that nature on the part of an ambassador to an Eastern court, tend to degrade his consequence and to impede the progress of his negotiation. It appears to me, therefore, to be extremely desirable that one of the Company's civil servants, whose talents and general knowledge, especially of the Arabic and Persian languages, may qualify him for the situation of secretary to your embassy, should accompany you in that capacity; and I have accordingly written to the vice-president on that subject, to whom I have the honour to refer you for further details relative to the selection of your secretary. If you should deem the services of Mr. Robertson, whom you have appointed to act as your secretary, to be necessary to the despatch of the affairs of your mission, he may be employed in the capacity of assistant to the secretary to your mission, the latter being a civil servant of the Company. I hereby confirm the temporary appointment of Mr. Robertson in the office in which you have employed him, referring you to the vice-president in council for the scale on which his allowances are to be paid on account of the services which he has already performed, as well as for that by which his future salary is to be regulated, if you shall find it necessary to employ him in the capacity of assistant to your secretary."

Great changes have taken place since the above instructions were penned, but the staple of their truth remains. There has been so much popular misunderstanding about Lord Clive, and so *scant* a measure of justice awarded to his singular and distinguished career, that we cannot but quote the following noble letter:

Lord Clive to the Marquess Wellesley.

"Fort St. George, 3d September, 1803.
[Received 25th September.]

"My dear Lord,—The generous and affectionate expressions conveyed to me in your lordship's letter of the 4th ultimo, upon subjects intimately connected with my reputation, and nearly touching the feelings of my mind, have penetrated me with sentiments of the sincerest regard, gratitude, and respect. Had not your lordship's former communications, the consideration of the important crisis of affairs, both in India and in Europe, and my own judgment, confirmed by the whole course of my observation upon events and proceedings at this place, anticipated in my mind the indispensable necessity of my continuing in the exercise of the authority of the government of Fort St. George, under any circumstances that might have occurred, until the arrival of Lord William Bentinck should enable me to relieve myself from that arduous and important charge; the decided expression of your lordship's judgment and wishes contained in your despatch of the fourth ultimo, could have left no doubt of the determination which it would have become me to adopt and pursue; I feel, therefore, great satisfaction in having afforded this last proof of my obedience to your lordship's commands, and I congratulate your lordship with sincere pleasure on the opportunities at length afforded me of transferring the charge of this government to the honourable hands appointed to receive that trust. Your lordship's intention of passing your solemn and public judgment in council upon the subject of my administration, is matter of much consolation to the feelings of my mind; and I am truly grateful for the great kindness of your lordship in desiring me to point out the mode of fulfilling that intention which may be most satisfactory to me. The circumstances in which I have been placed by the extraordinary procedure of the Court of Directors have compelled me to discussions relative to the administration of the internal affairs of this presidency, which have completely laid open to that honourable court, and to your excellency, the motives, progress, execution, and result, of all the principal acts of my government. These details are minutely described in my several despatches to the honourable court; and, feeling a well-grounded confidence that the judgments recently pronounced by that body, under the impression of a passionate view of my administration, will yield to the evidence of my success in the improvement of the affairs of the East India Company on the Peninsula: my anxiety on this subject is entirely relieved by a just assurance that your lordship, in passing a formal judgment on my government, will pursue that course which, under a more general view of this important question than I am competent to form, may be best calculated to secure the stability, prosperity, and honour, of the empire in India, on principles of enlarged and national policy. On your lordship's superior judgment, therefore, on your intimate knowledge of the acts of my government, and of the principles which have guided the conduct of my administration, and on the dignified and fervent friendship of your lordship, the result of our cordial union and co-operation for the attainment of the most important public objects, I entirely wish to rely, not only for the fairest and most enlightened decision on the merits and character of my administration, which it may be capable of receiving, but also for the mode which may render that decision most impressive and convincing. In order to complete the documents in your lordship's possession respecting my administration, I do myself the honour to enclose the concluding minute by which I formally resigned the government of Fort St. George into the hands of Lord William Bentinck; and I trust that the points which I have endeavoured to impress on the attention of my successor will be deemed by your excellency to be conformable to the system of your lordship's policy for this presidency in the actual situation of its affairs. I have the satisfaction to add, that I think it of importance to state, that the public accounts completed since the date of my minute, exhibit a material improvement of the public revenue beyond the amount at which it has been stated and estimated in the documents officially submitted to your excellency in council, in the past as well as in the current revenue. I am extremely sensible to the kindness of your lordship's invitation to Bengal. The contemplation of the personal satisfaction and advantage which I should derive from the society of your lordship, and from the communication of your sentiments upon the important objects which have so long engaged our joint attention, as well as the peculiar interest with which the scenes and improvements in Bengal could not fail to affect my mind, would hold out inducements not to be resisted, did not the extraordinary circumstances in which I have been placed, and the length of time during which I have deferred my departure for the avowed and sole purpose, now accomplished, of resigning into the hands of my successor the government of Fort St. George, render it most consistent and necessary that I should embrace the earliest means after the accomplishment of that event, of repairing to England. It is, accordingly, my intention to embark the moment the ships are ready for sea, which cannot, I believe, now exceed four or five days. It is impossible for me to contemplate my approaching separation from your lordship's labours, without reviving in my mind all those sentiments of gratitude and attachment which have been excited by your lordship's uniform friendship, support, and advice; nor without renewing to your lordship the assurance of my most fervent esteem, respect, and affection. I look not without anxiety, but with a confident expectation of success, to the termination of your lordship's present contest with the Mahratta chieftains; and when your lordship shall have added that trophy to the brilliant career of your achievements, I trust that the national policy will have been sufficiently matured to call upon your lordship for the only means of preserving, by the wisdom and firmness of your councils at home, the great empire which has been extended and consolidated by the vigour

and success of your lordship's administration abroad.— I have the honour to be, &c.

"CLIVE."

We cannot conclude without a brief tribute to the merits of the editor, Mr. Montgomery Martin. His industry and his research are unrivalled: he has brought forward subjects long and wonderfully neglected; and no writer has contributed so much to the public stock of most requisite and important knowledge.

An Essay on the Roman Denarius and English Silver Penny, shewing their Derivation from the Greek Drachma of Ægina, &c. &c. By W. Till, Medallist. 12mo. pp. 230. London, 1837. Till.

THIS desultory volume, without any of the craft of authorship, contains much practical information on the subject of which it treats. The medal collector will find it a very useful guide; and even the general reader may gather amusement and intelligence from its varied pages. As a sample of this, we may quote a few passages which bear on interesting historical points.

"Contemporary with the coins struck by the Saxon monarchs, are those found in Ireland, having for a legend straight strokes, instead of letters. A very considerable number of these coins have recently been discovered, and the major part of them brought to London, being all of one type; presenting, on the obverse, a very rude head with a crosier; and, on the reverse, a cross. They are evidently prelatical, and though heretofore known, are still unpublished. Pennies of the kings of Dublin are also found, with the superscribed title and the name added. We meet with those of Sithric, Dymnroe, Inidfrid, Stired, &c. Our Saxon kings, Eadgar, Ethelred, Edred, and Anlaf, struck pennies in Ireland, the first of these monarchs having conquered that country. The pennies, as before stated, were the chief coins circulated by the aforesaid sovereigns and prelates; the sees of Canterbury and of York having the privilege of striking them. Coins, also, of the penny size, are sometimes seen bearing what indicates neither an English or Irish origin, while their locality identifies them with the British Isles; and it is presumed that these coins are either Danish, or were struck by sovereigns whose sway extended to the Isle of Man, being frequently found there. They bear, on the obverse, a rude head; reverse, a cross, &c. very similar to our early English pennies at the commencement of the twelfth century. William, the usurper and conqueror of England, A. D. 1066, fearing the consequences of too frequently reminding his new subjects of their degradation and fallen state, took especial care to strike his penny on the model of that of his predecessor, Harold II. The Conqueror's portrait, however, as far as the inferior work can perpetuate it, is faithfully delineated, being that of a merciless and rapacious tyrant. On some of his coins he appears in profile, and on others full faced, with and without a sceptre, or a cross ornamented. The pennies of the Conqueror are all rare, if we except the Pax type, which, from being extremely scarce, have now become very common, from the circumstance of an abundance of them being found at Beaworth, near Winchester. This discovery has furnished us with a new type, before unknown—that of having the portrait in profile to the left, instead of full faced, as heretofore, with Pax on the reverse. The canopy type of the sovereign still continues very scarce."

Mr. Till goes on describing the pennies of the succeeding reigns, and we come to one of considerable interest.

"Richard I., A.D. 1189. We now come to a break in the English series. Of this monarch we obtain no English coins. Richard Cœur de Lion was only eight months in Britain during his reign: to this circumstance, probably, we may attribute the want of his coinage. Snelling, an admirable writer on English coins, but unfortunately for his credit as a judge of medals, has engraved two, as being found with others near Leeds, in Yorkshire. But he was deceived. A person of his day fabricated them, and thereby gained a disgraceful notoriety by his trickery. Folkes and Ruding have perpetuated this blunder, by likewise engraving them. The latter, indeed, is excused, as he not only alludes to them as being false, but was obliged to publish them, having the loan of the original plates of Folkes, in order to embellish his own work. Rapin gives a penny of Edward the Confessor, struck at York, as one of this sovereign, and by some unaccountable mistake, has made it read 'RICARD,' instead of 'EADFARD.' Another penny, assigned by the same author to Richard I., and engraved in page 258, is not of this king. Speed has made the same blunder, by assigning the same coins to Richard. That the heavy sum paid by his subjects for his ransom (to the eternal disgrace of the emperor, Henry VI.) should have taken all his coins out of the country, had there been any, is a truly ridiculous supposition. For had the monarch in question issued even but a few coins, no human power could have so traced them, as to leave none in the kingdom for future discovery. And there are those in every age whose curiosity nothing can repress. I will, therefore, fearlessly assert, that the absence of all English coins of a sovereign so much beloved as Richard Cœur de Lion, can only be attributed to one cause—namely, their primitive non-existence. Nor was this ransom paid in coin, but with one hundred and fifty thousand marks in weight of fine silver. If, therefore, the reader is desirous of possessing a coin of Richard I., he must procure one struck in that monarch's paternal dominions of Acquitaine and Poictou, a coin nearly the size of the English penny, but of base silver, and without portrait. Such coins are termed Anglo-Gallic: they are extremely rare. John, A.D. 1199, struck no coins in England (at least none have been discovered). This circumstance is the more singular, as, according to the records, we find he had various places of mintage in this country. He struck his pennies and other coins in Ireland: the former alone I allude to. His portrait on the obverse, is full faced within a triangle, surrounded by his name and title, and in his right hand is a sceptre. On the reverse is a similar triangle enclosing a crescent and a star. The pennies of this king are rather scarce."

These extracts will shew the character of this part of the volume. Mr. Till then gives us a good list of books of reference on coinage, &c.; some remarks on Queen Anne's farthings; a Report of the proceedings of the Numismatic Society, recently formed; and a sketch of the Battle of Barnet.

With regard to the Numismatic Society, though the *Literary Gazette* has contained notices of its sittings, we shall copy two more detailed reports of the author on subjects of curious value. At one of the meetings, he says, "I embraced the opportunity of placing before the members, a cast from an unique gold medal, or pattern-piece of Charles the First. This extraordinary piece is in the possession of Lieut-Colonel John Drummond; indeed, it was at my suggestion that he recently purchased it of the Rev. Mr. Commeline, Senior Fellow of St. John's College, Cambridge. This gentleman is a collateral descendant of Bishop Juxon, who attended the unfortunate monarch in his last moments. It appears that at that eventful period, the king possessed the jewel of the order of the garter, and another diamond, and two seals; and previously, or at the time just referred to, this identical medal, which his majesty presented to Bishop Juxon, as a mark of regard for the attention and attachment the bishop had shewn him. There appears to be a tradition in Mr. Commeline's family, that it was given by the king to the bishop while the monarch was on the scaffold; but this statement may be doubtful. Sir George Chetwynd, Bart. is descended from Elizabeth Juxon, a niece of the bishop, and who possessed the original jewel of the order of the garter, which all authorities acknowledge was given by the king only a few moments previous to his death; and Sir George informs me, that he has heard his father likewise state, from tradition, that the garter alone was given on the scaffold. Be that as it may, it cannot increase or diminish the value and interest attached to this medallic memorial. That it came from the king is certain, and that it was given to the bishop is likewise certain, for he by will bequeathed it to Mrs. Rachel Gayters, who gave it to her grandaughter, the wife of the Rev. James Commeline, who was father of the present rector of Red Marley, Worcestershire, of whom Colonel Drummond purchased it. This curious medal bears on the obverse the bust of the king, with his name and title, and with the rose as a mint mark; the likeness is very good, but it cannot compete with the likenesses executed by Briot, from the original portraits of that sovereign by Vandyke: that on the coin in question is doubtless the work of Rawlins, an artist who followed the fortunes of his royal master, and was subsequently employed by Charles the Second. He executed that very rare crown-piece, struck at Oxford, and having that city represented under the horse on which the king is seated. If the medal under consideration, be compared with this coin, the portrait of Charles will be found to be exactly similar on both pieces, though a slight difference is perceptible in the costume; still, the workmanship of both is evidently traceable to the same hand. On the reverse are the arms of England, crowned with C. R. &c., and accompanied by the legend, 'Florent Concordiâ Regna,' (kingdoms flourish by concord), doubtless, in admonitory allusion to the unsettled state of the times: this side likewise bears a mint-mark. It may be asked for what purpose was it struck; was it intended for a coin or a medal? I reply, without fear of contradiction, that it was meant as a pattern for a coin, or, else, for what reason are the mint marks? The coin weighs 733 grains, and has what is termed an engrailed edge, but it is not milled. There is a twenty-shilling piece in gold, very similar in appearance, having for the mint-mark an anchor, and the king's titles more abbreviated."

At a subsequent meeting, "the secretary read a very curious and interesting letter on certain ancient coins of the Chinese empire, called knife coins, from the pen of a member of the society, Mr. Samuel Birch, a gentleman who, it appears, has paid the greatest attention to the currency of the *celestial* empire; and, if we may judge from the abstruse nature of his communication, it will be long before he finds

a compeer in the field which he has made his own, and has so successfully explored. The following is the substance of his communication, "which," says Mr. Till, "I gathered from taking notes at the time:"—

"The sulphur impression, now offered to the gentlemen present, is from a fragment of a *taou*, or knife-coin of the Chinese, in the British Museum. It is of brass, or bell-metal, exhibiting a light brown bronze appearance on the exterior, and an iron-coloured granulation at the edge of the fracture, consisting of a perforated ring, and the upper portion of a fluted blade. Knives appear at an early epoch to have been worn by the various Tartar hordes, who thus characterise themselves, in the language of the tragedian — 'The wild chase is our trade, battle and conquest our chief occupation.' They were worn attached to the girdle; for, in a juvenile Chinese Encyclopædia, a stanza of the *Kooloo-foo* poem is quoted, in which a wife thus deplores the absence of her husband:—

'Oh, my husband! where art thou
Beyond yon hills, which tower o'er each other?
Shall I hear the head of your great knife,
When the moon, like a rent mirror, ascends the heaven?'

The commentary explains the head of the great knife, as the ring by which this instrument was attached to the girdle, producing a clinking noise, and forewarning the approach of the wearer. The 'Istorica Relatione del gran Regna della Cina' of P. Alvaro Semedo, in its narration, mentions, among the presents made by the Mahomedan ambassadors to the Chinese throne, '600 knives and as many files;' and the narrator continues, 'this last present appearing to me very extraordinary to offer to a monarch, I inquired what use the king made of them, and found none who could tell me; but a certain captain alone said, 'That it was a very ancient custom, and so strictly observed, that no substitution was allowed.' The use of knives as coins is of a far earlier epoch, and the reason of this feudal right being demanded in the seventeenth century, probably had reference to that haughty arrogance of the Chinese court, which regards all other monarchs as its vassals. 'The 'Chin-paou,' a tract upon precious things embodied in the *San-tsae-too-hwuy*, contains an account of the early currency. It appears from this tract, that the knife-coin was the actual adaptation of this shape to the currency, and its accounts relative to these coins are as follow:— Ancient knives used under the former monarchs in the same way as silks and gems. Gold knife of the emperor Wangmang, A.D. 10: perpendicular inscription on the seal character, 'one knife equal to 5000.' Knife of unnamed material, coined by the same monarch: perpendicular inscription in the seal character, 'legal knife 500.' Knife found in the fifth year of Suenho, in a field near Kinhëen, a village of Munching, with a perpendicular inscription in an old court hand, 'heart-shaped spoon currency 500.' Silver knife, with an illegible inscription, found by Wangkung, a high literary officer in Kinchown: uncertain whether cast under the Kewfoo. Hagar, in his 'Numismatique Chinoise,' gives a drawing of a Chinese knife-coin quite perfect, belonging to the French Museum, probably remitted by P. Amiot from Pihking; and the great rarity of these coins may be inferred from the fact of none belonging to the collection of Mr. Marsden, who had every facility for acquiring them.' Probably no coins in the world are less intellectual or interesting than those issued by the Chinese, who, notwithstanding the insulting presumption for which they are notorious, are immeasurably behind all other civilised nations in the art of mintage.'"

Illustrations of Jerusalem and Mount Sinai; including the most interesting Sites between Grand Cairo and Beirout. From Drawings by F. Arundale, Architect. With a descriptive Account of his Tour and Residence in those remarkable Countries, 4to. pp. 116. London, 1837. Colburn.

"THE circumstance of Syria being under the dominion of the Turks," observes Mr. Arundale, "the little facility or accommodation afforded to the European traveller — the want of those luxuries which (forgetting the difference of climate) the English stranger fancies necessaries, and the fatiguing slowness of the travelling, over a mountainous country, where the roads are not improved by art, demand great moral, as well as physical courage, to endure the constant vexations and privations that await the traveller. But so numerous are the reasons by which many might be deterred who anxiously wish to visit this interesting country, that it would be needless to cite them; to such I beg to submit the following views, as facsimiles of sketches taken on the spot. The eye of the painter will doubtless see in them much that might be improved; as, in the descriptions, the poet might embellish many of the scenes. The simple narrative of the events of each day, with the opinions of various celebrated travellers on the objects and places connected with sacred history, interspersed with a few historical data, interesting to every reader who peruses the description of a country and city 'once the joy of the whole earth,' but deprived of all its former splendour, with now 'not one stone left upon another,' is all that is offered to the reader in these pages. This, it is to be hoped, may give interest to the views; and the views may serve, in their turn, to illustrate more clearly, and make amends for any deficiency in the description."

The views, which are above twenty in number, are pleasingly executed in lithography, and have the simplicity and truth by which all topographical drawings should be distinguished. It is not in such works that we wish to see fidelity of representation sacrificed (as it too frequently is sacrificed) to picturesque effect. This remark is peculiarly applicable to scenes which associations, derived from our earliest youth, invest with a sanctity, that makes us feel any attempt to disguise or alter their actual features to be a kind of profanation.

With respect to the descriptive portion of the volume, although certainly, as Mr. Arundale himself modestly admits, it does not add much "to the treasures of information already accumulated respecting what may be called the scholastic, or antiquarian views of this wonderful and sacred land," we have no doubt that, as he asserts, it will prove "serviceable as a guide to the future traveller, who, the author trusts, after passing the same route, will be enabled to bear witness to its correctness." We will quote two or three of the most interesting passages from Mr. Arundale's narrative. And first, his account of the Dead Sea:—

"After remaining here (the banks of the Jordan) an hour, we proceeded towards the Dead Sea. Our path lay over loose ground, strongly impregnated with salt; so rotten, indeed, was the soil, that the horses sank nearly up to their knees at every step. After toiling slowly along for an hour and a half, we arrived at the shore of the Dead Sea. An immense quantity of timber of various sizes encumbered the space between the water's edge and the line of a previous inundation. Our first impulse was to ascertain the truth or falsehood of the innumerable and wonderful peculiarities which we had heard these waters possessed; we immediately waded in, and were delighted to find the marvellous relations respecting the unusual power of buoyancy completely verified. This was sufficient entirely to support our weight, without the slightest exertion of strength or skill. The peculiarity of these waters has been much exaggerated, both in ancient and comparatively modern times. Pliny asserts that living bodies could not sink in it; and Strabo affirms that it supports a man as high as the middle. Vespasian, according to Josephus, caused some persons who were unable to swim to be thrown in with their hands tied, but they all floated. Maundrell tried it; and confirms the fact of the extraordinary buoyancy, but, of course, not the extent asserted by the ancients. Pococke adds his testimony to the power with which he was supported, though, as he says, he remained in the shallow parts near the bank, without venturing far into the deeps, where, in all probability, the effect would be still more powerful. There is a vulgar notion among the Arabs, that the water would consume the body of any person rash enough to attempt to swim across; nor is this supposed burning property obnoxious to human flesh alone, but to wood and iron; for they say, that the same would happen to boats, of which there is not one on the lake. The only traveller of any late period who does not confirm the extreme buoyancy of the water, is Mr. Jolliffe, who describes it as but little more dense than that of the sea generally. That gentleman, however, was prevented, by the impatience of the Arabs, from going any distance from the shore; and the beach slopes so gradually, that it is necessary to wade an hundred yards and upwards to go out of one's depth. We found the water as bitter, and as painful to the eyes, as it is generally reported to be. Numerous chemists have analysed this water, and have given different, and, in some cases, inconsistent proportions of its ingredient parts. The investigation, however, carried on by the accurate Dr. Marcet, is, I believe, published in the Philosophical Transactions of 1807. He determines the specific gravity of this fluid to be 1211, which bears to the specific gravity of water the proportion of 1211 : 1000. This density is greater than that of any water which is produced by natural means. His analysis is as follows. The proportions are taken to 100 grains of the water:—

	Grains.
Muriate of Lime	3·92
Muriate of Magnesia	10·246
Muriate of Soda	10·36
Sulphate of Lime	·054
Sum	24·58

Thus, this singular water contains nearly one-fourth of its weight in salt. The conjectures made for the purpose of reconciling the present appearance and singular peculiarities of this wonderful collection of water, with the scriptural account of its origin, are many and ingenious. No reason can be given for the excess of saline matter in its composition, but that which refers to this account. Chateaubriand deprecates, and with apparent reason, the supposition that this basin is the crater of an extinct volcano. This, he says, has none of the distinctive and universal peculiarities which he had observed in Vesuvius, Solfaterra, Monte Nuovo, the Peak of the Azores, the Mamalif, opposite to Carthage, &c., in all of which 'I observed,' he says, 'the same characters, that is to say, mountains excavated in the form of a funnel, lava, and ashes, which exhibited incontestable proofs of the agency of fire.' This traveller seems inclined to agree in the ingenious conjecture of Michaelis, who supposes

that Sodom and Gomorrah were built on a mine of bitumen, into which, when blazing from the effect of lightning, the fated cities sank. There is another most acute conjecture of a French philosopher, M. Malte Brun, I believe, that the walls of these cities were themselves constructed with bituminous stone, and ignited by fire from heaven. The Mosaic account, too, Gen. xiv. 3, 10—'All these were joined together in the vale of Siddim, which is the salt sea.' 'Now the vale of Siddim was full of slime pits.' This bitumen is found in great abundance in the lake, from the bottom of which it rises in large masses to the surface, where it explodes with a great deal of smoke. The black fetid limestone, of which there is doubtless an immense stratum, gives, on burning, the true bituminous smell. The fetor of it is to be attributed to an impregnation of sulphureted hydrogen. The bitumen of the lake, which is more plentiful after high winds, is collected by the Arabs, and from the most ancient periods has been sold for medical purposes. The monks of the Latin Convent at Jerusalem keep quantities of the water and the bitumen of the Dead Sea in jars, and highly esteem it as an article of pharmacy. Pliny's assertion, that it was used by the Egyptians in the preparation of their mummies, has been repeatedly confirmed by the subsequent examination of those singular remains. It being dangerous, however, and heterodox, to sit down satisfied with a natural explanation of a phenomenon which we are expressly told, Gen. xix. 24, was produced by miraculous agency, we may easily suppose that the 'shower of brimstone and fire from heaven' was accompanied by a volcanic or bituminous eruption from the vast storehouse of inflammable and explosive matter which is undoubtedly accumulated beneath the soil. In fact, to add confirmation to this supposition, all travellers have united in describing the immense quantity of nitre in the neighbouring hills, which, by the aid of a thunder-storm, might readily be conceived the instruments of the terrible vengeance of Heaven."

Mr. Arundale's description of the town of Nazareth (now pronounced Nazzara) contains some curious matter:—

"Immediately on our arrival at this memorable town, we proceeded to the Latin Convent, which is situated on the eastern side. On presenting ourselves, we were received by one of the fathers with great distrust and dislike, as he took us for Turks; nor were his suspicions destroyed by our assurances of our real character of English travellers. An interview, however, with the superior set all right again, and from him we received every attention. The continuance of the bad weather, and the state of the roads, which were impassable from the swollen streams, gave us full leisure to examine Nazareth, by confining us for three days,—a period for investigating the antiquities, rather too long for the interest believed to be attached to them. The great curiosity (with the usual miraculous legend attached to it) are two granite columns, standing in front of the altar of the church, which the monks assert occupy the identical spots which the Virgin and the angel occupied at the Annunciation. The column of the Virgin has been broken away at the bottom, in such a manner that the shaft remains suspended from the roof. This is deemed miraculous, and, of course, undeniably proves the authenticity of the holy spot; for you are told that the pillar cannot be supported in any way. There can, however, be no doubt as to the nature of its attachment to the roof. On inquiring how long the column had so remained, we received the characteristic answer, 'Ever since the time of the Annunciation!' This broken column bears the reputation of healing all kinds of diseases, though a railing which surrounds it proves that the fear of infection has been stronger than superstitious reverence. The Latin Convent is a spacious and convenient building, which has been repaired about a century ago. The ancient structure is supposed to have been the work of the Empress Helena, to whom may be ascribed so many of the convents and churches in the Holy Land. A good number of fragments of columns, capitals, &c., shew tolerably well the style of architecture, which differed but little from other structures of the same date. Within the convent we were shewn the house of Joseph and Mary, and a cavern, divided into several compartments, to which are attached the titles of the parlour, bed-room, and kitchen of the Mother of Jesus; and here the greatest miracle was related, namely, the flight of the Holy House to Loretto; to confirm my belief in which, the monks shewed me the place from which it was removed. From the apparent sincerity of the monks, the openness of their manners, and the simplicity with which they related their miracles, I have no doubt that these good fathers most implicitly believed the truth of what they related. This impression was agreeable, after having witnessed the knavery of so many friars, in relating, without a blush, miraculous accounts, of which it was quite impossible they could believe a single syllable. The house of Joseph and Mary occupies, in length, nearly the breadth of the church, the interior of which, as well as the columns, are tapestried with rich silk, which produces a glowing and almost gorgeous effect. The broken column is probably the effect of Turkish avarice, which has, at some time, committed this injury in a search for treasure, supposed to be buried beneath it. In the convent is an establishment of fifteen monks, who are mostly either Spaniards, or of Spanish extraction. The interior of the building is kept extremely clean and neat; the monks appearing industrious and orderly. The convent is, in some degree, supported from some houses in the village which it possesses; but by far the most important portion of its revenue is supplied by the brethren at Jerusalem. Near the convent I was conducted to a small church, which I was informed was built over Joseph's workshop. It has been repaired since Maundrell's visit to this place, when he describes it as having been in ruins. No miracle, wonderful to relate, has been attached to this spot. We next visited a small chapel which preserves the most celebrated relic in Nazareth. This is the table on which Christ fed with his disciples. It is a stone slab of about twelve feet by eight, standing in the centre of the chapel. On this you are told our Saviour dined, both before and after his resurrection. It appears to be composed of the common limestone, which is plentiful over the whole Terra Santa, and is fixed firmly in the ground, with which, however, the upper surface is by no means parallel. It bears some traces of having been formerly covered with iron. Round the walls of the chapel are suspended copies of a printed certificate in Latin, asserting its authenticity:—'Traductio continua est, et nunquam interrupta, apud omnes nationes Orientales, hanc petram, dictam 'Mensa Christi,' illam ipsam esse, supra quam Dominus noster Jesus Christus cum suis comedit discipulis, ante et post suam resurrectionem a mortuis. Et sancta Romana Ecclesia indulgentiam concesset septem annorum et totidem quadragenarum omnibus Christi fidelibus hunc sanctum locum visitantibus, recitando saltem ibi unum Pater et Ave dummodo sit in statu gratiæ.' This is a great object of reverence, not only to the Christians, but even to the Arabs, who imagine that what is looked upon with such profound respect by the other sects, must have some miraculous qualities. The synagogue where Christ preached, and exasperated the Jews by his application of the words of Isaiah to himself, was next shewn. This is a small chapel, formerly in possession of the Greeks, but which has since passed to that of the Latin fraternity. The modern town is built on the side of a hill, as described by St. Luke; it is likewise surrounded by hills, which are in many points dangerously abrupt and precipitous. This was too good an opportunity to be lost on the monks, who have, accordingly, fixed upon a spot to represent the place where our Saviour was conducted by the incensed Jews.* To this they frequently repair for the purpose of celebrating mass. It has evidently been selected from its great height and almost inaccessible situation; and is a point on which no part of the ancient city could by any possibility have stood. It is, besides, two miles from the present town. On a large stone, in an upright position, are some indentations, which, you are told, are the marks of Christ's hands and feet, made in his struggles to resist the violence."

The celebrated Acre was in a melancholy state when visited by Mr. Arundale.

"The buildings were nearly all in ruins, from the late siege which the city had undergone from Ibrahim Pasha. They strikingly exhibited proof, both of the valour of the attack, and the desperation of the defence. After riding for two hours, we entered the walls. The fortifications appeared almost impregnable, and, if defended by another Sir Sidney Smith, would probably resist any assault. I shall never forget the scene of noise, confusion, and devastation which presented itself on our entry into the town. The streets were crowded with the troops of Mahomet Ali, the pasha of Egypt, who poured along every avenue in complete disorder, and still violently contending with each other. After many intricate windings, and a good deal of pushing and piloting among the crowd of men and animals, we succeeded in reaching the Latin convent, which seemed to have suffered less than any building we had hitherto passed. A single monk was the sole inhabitant at the time; but he received us with all the hospitality in his power, and immediately accommodated us with apartments. Our next care was to proceed to the palace of the divan effendi, for whom we had a letter of recommendation. We were not, however, fortunate enough to see him; but his place was supplied by the bey, who represented him, and managed his affairs. We found him extremely polite and attentive. He offered us every kind of assistance, and also letters to the governors of any towns we might intend to visit. After acquainting him that we wished for mules to proceed on our journey the next day, and which, without the assistance of some official person, it would be almost impossible to procure, he very kindly promised to attend to our request; and sent a janissary to accompany us round the city, and to shew us the details of that scene of ruin. We ascended the ramparts. Among the most striking ruins were the principal mosque, and the palace of

* Luke, iv. 29.

Abdallah Pasha, which, from their commanding height, afforded the most conspicuous mark for the shells. The beauty of the latter was perfectly annihilated; every thing had been wilfully destroyed, either by the madness of the victors, or the despair of the conquered. The beautiful fountains no longer fell sparkling from their marble basins, refreshing the splendid garden where art had rivalled nature in the effort to give pleasure to a man who, by the caprice of fortune, was now reduced to the condition of the most abject slave. They were now polluted by groups of dirty, noisy soldiers. The sites of the various buildings were indistinctly marked by confused heaps of broken columns and shattered friezes; but it was quite in vain to attempt to identify any of the magnificent buildings erected by the crusaders, in whose time it was a place of the greatest importance, both from its position and strength, sustaining several sieges. I remarked that the walls were much damaged in innumerable points by the cannonade, which appeared to have been carried on with the greatest fury; but I saw no attempts at reparation, excepting in the great breach on the eastern side. There was a great profusion of artillery, some of the pieces of most beautiful workmanship, principally of French and German manufacture. At sunset I returned to the convent, with my head full of battles and sieges, and in a state of mind rendered melancholy by those reflections which the sight of a theatre of war, deprived of all the illusion and excitement of actual conflict, must naturally excite."

MISCELLANEOUS.

My Book; or, the Anatomy of Conduct. By J. H. Skelton. Pp. 208. London, 1837. Simpkin and Marshall.

THIS is a volume of multifarious maxims, &c. for the regulation of our conduct; most of them sensible, and, where they are wanted, likely to be useful. Others are quoted from sterling authors; and the whole *mélange* is unexceptionable in principle.

Gleanings, Historical and Literary. 8vo. pp. 400. London, 1837. Simpkin and Marshall.

THERE is much both of information and of amusement in these pages, though arranged without any very obvious purpose. The compiler has read a good deal, and set down all that appeared most striking, and thus made a very pleasant volume to lie on a table, and be taken up occasionally.

Oriental Key to the Sacred Scriptures, by M. de Corbet (London, Mortimer.)—This is a very delightful little volume, illustrating the Scriptures by passages from various modern travellers in the East. It is curious to note how little manners and customs have changed, and how true as well as beautiful the imagery so profusely used by the inspired writers. We commend this *Oriental Key* to general use.

ARTS AND SCIENCES.

THE BRITISH ASSOCIATION.

SEVENTH MEETING: LIVERPOOL.

[Third notice.]

WEDNESDAY.

SECTION A.—*List of Subjects.*

1. Professor Lloyd's Description of a Magnetical Observatory at Dublin.
2. M. De la Rive—On the Interference of Electro-Magnetic Currents.
3. M. De la Rive—On an Optical Phenomenon observed at Mont Blanc.
4. Major Sabine's Report on Terrestrial Magnetism.
5. Mr. Fitzgerald—On Geometrical Theorems.
6. Mr. M'Gauley—On an Electro-Magnetic Apparatus.
7. Mr. Holden—On the Atmosphere of the Moon.
8. Lieutenant Morrison's Instrument for Measuring the Electricity of the Atmosphere.

The business of the Section commenced by Professor Lloyd reading a paper 'On the Subject of the Magnetic Observatory at Dublin.' He described the construction and various dimensions of the building. It had been found necessary to reject bricks, on account of the magnetic properties which they possessed, and therefore argillaceous limestone had been substituted in the erection. In order to avoid undue magnetic action, no iron had been used; but where metal was necessary, as in locks, bolts, hinges, &c., copper had been employed. The Professor next described the several astronomical and other instruments, their uses, positions, and the manner in which the various observations were made: he concluded by highly commending the liberality which Trinity College had displayed in the undertaking.

Professor Stanley said it was desirable not only to do away with the use of iron, but also of copper, or any other metal, in such buildings; and spoke of the possibility of substituting wood instead.

Monsieur De la Rive, of Geneva, and editor of the "Bibliothèque Universelle," then read, in French, a paper on electro-magnetic currents, which gave rise to a discussion in which several gentlemen took part. Monsieur De la Rive was also called upon to read a paper 'On an Optical Phenomenon observed on Mont Blanc,' which led to some conversation, in which Sir D. Brewster, Professor Lloyd, Mr. Lubbock, and Dr. Steveley, participated. The latter-mentioned gentleman observed, that whenever such an appearance is observed by the Belfast fishermen, they hasten to secure their boats, for fear of a storm. The Professor related an anecdote of a gentleman, who, having observed the phenomenon, pointed it out to a boatman, and asked him what it was. The man, however, instead of answering, ran off to spread the alarm, and shortly afterwards a violent storm came on, and almost destroyed all the vessels that had not been moored in a place of safety.

For Major Sabine's 'Report on Terrestrial Magnetism,' which succeeded, see our *Gazette* of the 16th inst.

Mr. M'Gauley read a paper 'On Electro-Magnetic Apparatus.' He said, since the meeting of the Association in Dublin, public attention had been very much directed to the powers of electro-magnetism and electro-magnetic apparatus, and several persons had given their opinions that this power would soon be brought into extensive operation; he confessed, however, that he was not so sanguine. If the views of some could be carried into execution, they would occasion a complete revolution in mechanics, and set at rest at least one important question. But it was well known that electro-magnetic apparatus of great power became considerable in size, and troublesome in operation. He then exhibited a new electro-magnetic apparatus which he had constructed, and explained its construction and mode of operation at considerable length.

Mr. Holden, 'On the Atmosphere of the Moon,' noticed that it had been disputed (Schroeter excepted) from the days of Eugene (temp. William III.) to the work of Sir John Herschel in the "Cabinet Cyclopedia;" and the reason assigned for doubting the fact was, that there were no seas in the moon, as shewn by the phenomenon of the crescent moon exhibiting, in the parts supposed to be water, inequalities instead of a perfect curve. Mr. H. maintained that the bottom and shallows reflected upwards would cause those indented appearances, and thus agree with the theory that there were seas in this planet. His other arguments were founded on observations. 1. That when our atmosphere was equally clear, as tested by double stars, the marks upon the moon were not at all times equally clear, which proved an agitation in the atmosphere of the moon. 2. That when the moon was about two or three days old in the month of May, the whole dark orb appeared, as well as the fine bright crescent in the west; but the points of the horns of light projected beyond half the circle, and much further than a tangent from the sun would produce; he supposed to the extent of 15° of the circumference; and that nothing but an atmosphere could account for this. 3. That Herschel, Short, and others, had seen fire upon the moon; Herschel, for the space of two days, as stated by him in the "Royal Society Transactions." It was known that fire could not thus burn without air; but air was an atmosphere, and fire being seen on the moon proved that the moon had an atmosphere. 4. That viewing the occultation of a star (the star μ 2 of Cancer), when it should have gone behind the moon, it was visible, coming apparently within the periphery of the front of the moon, and remaining there for the space of two or three seconds. Others had observed the same, and published the details in the "Transactions of the Royal Astronomical Society of London." This would settle the question, even were the former three arguments wanting to complete the proof.

Professor Steveley suggested that the second and third reasons were not perfectly satisfactory.

Mr. Lubbock made several remarks on the circumstance of the projection of stars on the surface of the moon, and instanced the fact, that, on one occasion, in the Observatory at Paris, this projection was observed with one telescope, and not with another. Sir James South had also noticed it repeatedly in Aldebaran.

A very interesting conversation followed, in which Mr. Holden answered objections urged against his theory by Sir D. Brewster, and others.

Lieutenant Morrison concluded the business of the Section by a description of an instrument for measuring the electricity of the atmosphere, as follows—

"The action of electricity is shewn by its causing the needle to deflect from the north towards the east, when the air is positive; and to deflect to the west, when the air is negative; as regards the earth. In the former case, the earth appears to be receiving an additional supply of the fluid, and in the latter case to be losing a portion of the fluid, which very rarely remains in a state of equilibrium for any length of time. It is, however, very seldom excited to the extent mentioned in the record. When the needle was deflected towards the east, the electricity is recorded as 'plus,' and when it was deflected to the west, as 'minus.' The 'degrees' are those of a mariner's compass, the circle being divided into 360°; so that when the record is 'plus 45°,' the needle was pointing N.E., and when 'plus 202°,' the north pole of the magnet had deflected round towards the east, and had passed the south, and pointed S.S.W. My own opinion of the action of the electricity in the air is, that it modifies the temperature, and is the chief exciting cause of wind; and I believe that whenever any of the more remarkable phenomena of the atmosphere are observed, the presence of a great degree of the electric action will be detected by its affecting the needle in this instrument.

We subjoin the results of five days' observations at Cheltenham, of the atmospheric electricity:—

No. of observations +	75	Mean intensity	60·3
Ditto −	22	Ditto	12·5
Ditto nil	13	—	—
Total	110	Mean intensity	43·6

Dr. Brewster expressed his approbation of the instrument, and requested Lieutenant Morrison to make further observations and experiments, to be reported to the Association.

SECTION B.—*List of Subjects.*

1. Mr. Black—On Electricity and on Brewing. See last *Gazette*.
2. Dr. Apjohn—On a new Variety of Alum—on a Compound of Iodine of Potassium—Iodine and Cinnamile.
3. Professor S. F. W. Johnstone—Report on the Present State of our Knowledge of Dimorphous Bodies.
4. Professor Graham—On the Constitution of Salts, particularly those containing Ammonia.
5. Dr. Clarke—A Simplification of the Calculations relative to Gases.
6. Mr. Mallet—On the Natural Formation of Crystallised Copper in the Mine of Cronebawn, Wicklow.

Dr. Apjohn introduced to the meeting a new description of alum which had been found in alluvial passages, in strata of great thickness, averaging thirty feet in some places. It was a true alum, the alkaline portion being replaced by protoxide of manganese, and exhibited much the appearance of satin spar. Its relation to ordinary reagents was very similar to alum. It was not soluble in caustic potash; indeed, it corresponded to alum in every particular, but it was the first instance in which the alkali had been replaced by a metallic oxide. He had attempted to form it artificially, but had never succeeded, though he had very little doubt the thing might be accomplished.—Dr. Clarke. Are the crystals octahedral?—Dr. Apjohn. No, fibral.—Dr. Clarke said, that in all other alums the crystals were octahedral, therefore, the want of analogy was distinct. All the other instances of alum were similarly constituted, though in different forms. Mr. Faraday had a little of this mineral sent to him as alum. He thought it was not alum. He did not like to use the special term alum to a salt composed of sulphate of alumina and of manganese. The name alum was an useful name; if they used it generally, they would extend it out of the class to which it belonged. Dr. Apjohn said, that though the mineral wanted the octahedral form, he did not mean to say that the salt could not be brought to the octahedral state, although he was not able to do it. There was a slight portion of magnesia, but that, he thought, might be entirely accidental. Dr. Thomson asked, whether the mineral assumed any regular form when dissolved in water? Dr. Apjohn said he had not been able to observe any alteration. Mr. Campbell said there were two reasons why the mineral should not be called alum,—because it contained no alkali, and could not be used for the purpose of dyeing. Mr. Brett wished to know whether Dr. Apjohn had noted the quantity of water of crystallisation possessed by the mineral? Dr. Apjohn stated it to be between 25 and 26 atoms. According to chemists, the known descriptions of alum contained the same quantity.

Dr. Apjohn then proceeded to lay before the meeting another communication, relative to a new 'Compound of Iodide of Potassium—Iodine and Cinnamile,' which had been accidentally obtained at Dublin, in the course of the year. The solution in which it was found contained iodide of potassium and cinnamon water. When the prescription was made up, the mixture was very much clouded; but in a few days the solution was perfectly clear, and a crystalline sediment was at the bottom, of a beautiful bronze colour. This sediment was soluble in alcohol and ether; hot water decomposed it, precipitating the iodine. The action of heat upon it was particular. It was so volatile that it could not fuse it unless when the temperature of the atmosphere is in 32°. It melts at 68° to 70°. If you urge the heat, the substance is decomposed, and the iodine evaporates, leaving a deposit behind it, which was iodide of potassium. The best mode of producing the compound was by taking ten grains of iodine, half an ounce of iodide of potassium, and a quart of cinnamon water. Dissolve the iodide of potassium in a minimum of water, and pour the solution into the cinnamon water, which then becomes turbid. A sort of brown powder shortly is deposited at the bottom, and the chloridine of the mother liquor disappears, which latter is found to be entirely divested of every trace of the oil of cinnamon. When the compound is brought into contact with the quicksilver, it is completely deprived of the iodine, which goes over to the mercury. This is important, because cinnamine is probably left free—probably forms cinnamic acid, in combination with the potassium. These experiments had, however, not been brought to a close. He had attempted to burn it, but had not succeeded. He had, however, arrived at some results with regard to its composition, the substance being, according to his belief, composed of 1atom of iodide of potassium to 3·95 of iodine, or nearly 4. The number of atoms of cinnamine were 5·6. There was no doubt that cinnamine could be extracted in this manner, and it was the first combination of a negative element with a metallic base. Dr. Kane threw considerable doubts upon the results of the compound, and thought that before it was positively asserted that a negative element would combine with a metallic base, a little more confirmation would be required.

Professor Graham then read a paper 'On the Construction of Salts, particularly those containing Ammonia.' He contended that water formed the base of most of the salts, designating the salts as oxalates of water, &c., and was satisfied that where ammonia and water replaced each other, it was in atomic proportions. It was supposed that an atom of water might be replaced by half an atom of ammonia and half an atom of metal, but this was not the case: ammonia was merely a basic adjunct.

Considerable discussion arose on this paper, in which Mr. Richard Phillips, Mr. Golding Bird, Dr. Kane, Mr. Faraday, and Professor Johnstone, joined; the three first appearing to think that the Professor had unnecessarily altered the chemical nomenclature, and that the salts had other than water bases. Professors Faraday and Johnstone inclined to Professor Graham's views on the subject.

Dr. Clarke, of Aberdeen, read a paper 'On the Simplification of the Calculations relative to Gases,' in order that teachers might the better be able to explain the constitution of mixed gases, and pupils to understand them. Taking the atomic relations of gases as generally used in this district, viz. oxygen 8, hydrogen 1, and the bulk of 8 troy grains of oxygen being 23 4·10 cubic inches, hydrogen will occupy 46 8·10 cubic inches, being double that of oxygen. If we take azote on this atomic scale, it will be 14, and carbonic acid 22; the bulk of 14 grains of azote is 46 8·10 inches; 22 grains of carbonic acid will likewise occupy 46 8·10 inches. He described the use of the term volume, as it was so vague a term that a pupil could not comprehend it easily. A very great facility arose from the employment of simple quantities. Take, for instance, the metal zinc; it is quite obvious that one atom of zinc, when immersed in sulphuric acid, will give off one atom of hydrogen; and if we want to know how much hydrogen will be given off by any thing, the mode is this: as 32 (the atomic weight of the zinc) is to 14, so is 46 8·10 to the required quantity. It is quite obvious that thus we get at the bulk at once, applying, of course, the usual corrections for the state of the thermometer and barometer.

Mr. Mallet laid before the meeting some specimens of crystallised copper found in the mine of Cronebawn, in the county of Wicklow, upon which subject he read a paper. Besides finding lodes of copper, the water at the bottom of the mine deposited crystals upon timber, which were found to be metallic copper. The question was, how the metallic crystals were formed in the water? The galvanometer was considerably defected in the mine.

A letter was read from Professor Hare, of Philadelphia, in which he stated that he had succeeded in melting platinum in masses by means of his oxyhydrogen blowpipe.

SECTION C.—*List of Subjects.*

1. Mr. J. Henwood—On the "Heaves" of some Metalliferous Veins in Cornwall.
2. Rev. D. Williams—On Plants in Greywacke, in Devon.
3. Mr. W. L. Crook—Unity of Coal Formation in England and Wales.
4. John Ham—On the Quantity of Mud in the Tidal Waters of Severn, Usk, and Avon.
5. Mr. J. Rivers—Temperature of Subterranean Rivers.
6. Professor Sedgwick—Incursion of the Sea into the Collieries at Workington.

Mr. Henwood read a paper 'On the *Heaves* of some Metalliferous Veins in Cornwall,' in which it was shewn, that at Dolcoath mine a *cross-course* dislocates two *lodes*, *heaving* them both to the right, and one part of one of them from the slate into an *elvan-course*, whilst the *elvan* is simply intersected, but is not at all dislocated. At but a very short distance the same *cross-course* is *heaved* by a *lode*. In Huel Prudence mine, an *elvan-course* and a *lode*, both dipping north, and a second *lode* dipping south, are all heaved right by the same cross-course; whilst the vein dipping north traverses and dislocates (throwing the lower part upward) of the *lode* underlying south. He imagined that a subsidence of the *elvan* and the two *lodes* on one side of the *cross-course* in Dolcoath, would explain their present positions approximately; but the *heave* of the *cross-course* by the other *lode*, remained unexplained on the theory. According to the hypothesis, also, one of the *lodes* in Huel Prudence should be *heaved* right and the other left; but both are, in fact, *heaved* the same way, and there is still unsatisfied, the throw of one vein by the other. These facts Mr. Henwood thought inconsistent with the theory of *mechanical* disturbance, and he was disposed to imagine them contemporaneous with the veins themselves. Some cases, however, he thought might possibly be mechanical; but whatever the origin of the phenomena, their solution was of vital consequence to the miner, as the accurately understanding their laws would prevent useless and unprofitable outlay, which, at present, is too frequently incurred from not knowing where to find the severed portions of a dislocated vein. He concluded by stating that Cornwall offered an extensive field for the verification of any theory of veins, and that the *practical miners* of that county entertained the opinions which he had advanced. Upon this an interesting discussion ensued.

Mr. Hopkins said that there could be but few worse places for observing the phenomena of the intersections of veins than in Cornwall, for the angles at which they met, and which, for theoretical purposes, must be most accurately determined, could seldom or never be accomplished in that district. The positions

and directions of the veins in Cornwall, he, however, thought accurately coincided with the postulata of the mechanical theory, which shewed that veins must have been originally fissures (not however open ones), and in these the substances of the lodes were deposited. The contemporaneous theory, if it deserved the name, was an inconceivable process, for it would not at all account for the occurrence of the substances now found in lodes, which the hypothesis of fissures permitted the accumulation of by infiltration, and by divers other means. The mineral matter of veins continually occurred in determinate planes, and in no irregular masses. He thought the mechanical theory would readily solve every case of dislocation in Cornwall.

Mr. De la Beche said, that excepting in "a few unhappy cases," which his friend Mr. Henwood had selected, the mechanical theory was strictly applicable. Wherever dissimilar rocks occurred near the veins, motion could most indubitably be proved to have taken place; many, indeed most, of the veins of Cornwall, were "*faults*;" for example, in Dolcoath, Harriette's *lode* was incontestably a "*fault*." Indeed, incontrovertible geological evidence, for instance, the occurrence of organic remains in some of the slates, shewed the physical impossibility that the veins could have been contemporaneous. He would go so far as to say, *he could solve every case of a heave found in Cornwall, even to the small strings of tin ore and schorl in Carclaze mine, of every one of which he could prove the mechanical origin.*

Professor Phillips said that Mr. Henwood had before submitted these curious intersections to him, and he had calculated their displacements according to the mechanical theory, and he thought that he could explain them all, excepting the case at Dolcoath, where the *lode heaved* the *cross-course;* and here, perhaps, this *lode* was of more recent origin than the others, and the *throw* of one vein by the other at Huel Prudence: this last, indeed, he did not think the theory could explain. The contemporaneous theory literally taken, he did not think could stand; but still there were cases which the other theory could not explain; and surely no one would say that it was perfect, whilst it left one single condition unsatisfied. The jointed structure of rocks, and the approximation to conformity between the directions of the veins and joints, had unquestionably a great influence on the question under consideration. So far, however, he had no doubt that he and Mr. Henwood agreed, that wherever the jointed structure originated, he thought the consolidation of the rocks in that form, and of the veins in them, was simultaneous, and the difference between them, he thought, more in word than in reality. The case submitted was one of the greatest importance. Practical men applied to scientific men for assistance in the due direction of their labours, and surely their request should have immediate and most considerate attention.

Mr. John Taylor, junior, described many interesting features of metalliferous formations in Flintshire, in Clare, and in Carolina. In Coniston mine, he said, the mere joints in the rock shifted the vein, and Mr. Hopkins, he supposed, would call these cases of unquestionable mechanical disturbance. If the eminent men who had spoken so certainly of being able to point inevitably to the dislocated portions of lodes, they would confer a favour of no ordinary value on the miner, whose time and money were too often wasted in "driving" in a wrong direction in pursuit of a "heaved" vein.

Professor Sedgwick said, Mr. Henwood has here laid before the Section but a very few of the numerous important results he had obtained during the years and years in which he had been digging, delving, climbing up, down, to and fro, sometimes in mud on hands and knees, and, in the most tedious manner imaginable, had travelled fathoms by hundreds and thousands; miles, ay, *not less than two thousand miles underground.* Such results, obtained with such labour and trouble, could not be too highly valued. He could neither agree with Mr. Henwood, in considering all veins contemporaneous, nor could he go with his friends, Mr. Hopkins and Mr. De la Beche, making every thing mechanical. He was nearer to Professor Phillips, and indeed thought that they and Mr. Henwood were more nearly agreed in fact than appeared in word. He thought contemporaneous consolidation, or solidification, would suit both parties, and then he thought there was little difference left to be explained. Many of the veins had incontestably been formed, or got together, whilst both they and the rocks were unconsolidated: these solidified together, and thus gave a contemporaneity to their present form, although it by no means followed that they had all in a moment assumed this condition. Ages and ages might pass, and doubtless had passed, in the interval. He thought their best thanks should be given to the author of the communication.

Mr. Henwood rose to reply; but the President (Professor Sedgwick) stopped him, and called for the next paper.

Dr. W. H. Crook 'On the Unity of the Coal Deposits of England and Wales.' The object of this communication was to shew that the coal-fields of England and Wales were not distinct basins, but that the supposed basins were merely portions, which had been detached and elevated by the agency of sienitic and trap rocks of a much larger deposit, spread over the districts now covered by rocks of the new red sandstone series. Dr. C. conceived that this view may be extended to the coal of Belgium, of the North of France, and the North-West of Germany; the carboniferous beds of those countries, as well in our own, having originated, in his opinion, in a drift of vegetable substances from countries lying to the East and E.S.E. of them; and he also stated, that the richness and extent of the English coal-fields, especially those of the midland counties, arose, in a considerable degree, from the impediments offered to the transit of the drifted matter by the slate and other ancient formations of Wales and Cumberland. The President, in presenting the thanks of the Section for the communication, stated, that there was much probability in these views in respect to England; but he was very doubtful whether they would apply to the coal-basins of Wales.

Mr. Sedgwick now addressed the meeting, and drew a vivid picture of the irruption of the sea into the colliery at Workington. His account of the escape of a miner of the name of Brenner, who scaled 3000 yards, and burnt out three candles in effecting this miraculous retreat, had so potent an effect on his audience, that a voluntary contribution was raised for him, and a subscription of 34*l.* 4*s.* collected on the spot.

Mr. Ham next read an able paper 'On the Quantity of Mud in the Tidal Waters of the Severn,' &c.

Before vacating the chair, Professor Sedgwick thanked the ladies and gentlemen present for their kind donations in support of his Irish friend, the miner.

SECTION D.—*List of Subjects.*

1. Dr. D. Williams — Notice of a Species of *Limax* voided by a Patient.
2. Mr. Bellingham — On the frequent occurrence of *Psichocephalus dispar* in the Human Intestines.
3. Dr. Daubeny's Report on the Cultivation of Plants under Glass, and without Ventilation.
4. Mr. R. B. Ward's Report on the same.
5. Mr. Pooley — Case of a Bird remaining torpid under water.
6. Mr. Gould — Exhibition of Drawings of new Birds from Australia.
7. Mr. E. Forbes — On some rare forms of British Birds and Animals.
8. Mr. J. Smith — On some undescribed Shells.

The first two papers need only be alluded to; Dr. Daubeny's and Mr. Ward's reports on the cultivation of plants, we have sufficiently anticipated; as we have also Mr. Pooley's story of the swallow incrusted in ice. Mr. Gould's drawings were, like all his other productions, superb, and the novelty of some of the subjects added greatly to the interest of the exhibition. The other papers were short, and without the specimens, *ir-reportable.*

SECTION E.—*List of Subjects.*

1. Dr. J. Macintosh — Demonstrations and Exhibitions of Morbid Preparations of Dysmenorrhea.
2. Sir James Murray — Upon Urinary Salts.
3. Dr. J. G. Simpson — Cases illustrative of the occasional Propagation of Malignant Cholera, &c.
4. Dr. W. H. Madden — Experiments on the Connexion between Nerves and Muscles—communicated by Professor Alison.
5. Dr. G. C. Holland — Inquiry into the Influence of the Pain of the Heart, and other Organs, in health and disease.
6. Dr. Hugh Carlisle—On a Malformation of the Cerebellum of an Infant.

The first of these was a very important medical exposition, and will, we trust, be given to the public in a proper channel. The other communications were also of a valuable character, though the details are not quite calculated for popular reading. In the conclusion

A paper was read by the Secretary from Dr. Hancock, of London, 'On Leprosy.' Dr. M'Intosh said it was hardly a paper for the British Association. It was too lengthened, too controversial, and too prosy. The Association wanted experiments and facts, and not a history of cures, and a controversial discussion. This was more a paper for a magazine. They wanted information as to improvements in medicine. The President said these observations applied more to the committee who had admitted the paper. But, as the author was absent, it would be better if Dr. M'Intosh confined himself to a medical view of the subject. Papers should be as much as possible on the fundamental principles of medicine, and relate to controversial facts, or detail cures. They should carefully exclude any thing which would tend to make their Section a puffing Section. Dr. M'Intosh said something really ought to be done in order to keep up their character as a part of the Association. The descriptions of disease in the paper were very good.

[We take this opportunity to remark on the very great importance of the matter here alluded to. The sectional committees are either ill-constituted, or they often leave their duties to be performed at random. Many papers were brought forward in every department of science, so *puerile* and *aged*, that they ought never to have been seen by the Association. This also led to some disagreeable scenes, in which individuals, presenting themselves under the sanction of committees, were abruptly checked and put down by the presidents, as unworthy to be heard, in the face of the assembled sections. Surely, a more careful previous examination of the papers offered is possible; and as surely the members of the committees must be competent to decide whether they are worthy of publicity, or such trash as too frequently finds its way into these pro-

ceedings, occupying time that might be much better employed, and throwing a slur over the general transactions.]

SECTION F.—Lord SANDON in the Chair.

Mr. Gregg read a report on the condition of the working classes in Manchester, Salford, Bury, Duckinfield, Staly-bridge, and Ashton. The result of the inquiry was, that a population of 322,800 persons of the working classes had been visited, from house to house, during a period of seventeen months, in the years 1835–6, at an expense of 175*l.* The estimated population of the different places at the time of the inquiry was—Manchester, 200,000; Salford, 55,000; Bury, 20,000; Ashton, 22,000; Staly-bridge, 17,200; and Duckinfield, 8600. The number of houses and dwellings examined were—in Manchester, 28,186; Salford, 9538; Bury, 2755; Duckinfield, 1690; Staly-bridge, 3313; Ashton, 3835. Of these there were:—

	Manchester.	Salford.	Duckinfield.	Staly-bridge.	Ashton.	Bury.
Houses	21,453	7584	1434	2547	3149	2641
Single Rooms	3,162	1108	224	670	627	46
Cellars	3,571	846	32	56	59	68
Licens. Victlrs.	..	..	7	29	69	117
Beer-houses	..	..	25	50	89	..

The houses were also classified, as well-furnished (chairs, tables, a clock, chest of drawers, &c.); not well-furnished; comfortable, and uncomfortable. Tables of the average rents, of the number of persons in each family, their occupations, creeds, country, &c., were given; but these were so exceedingly voluminous, and extended to such minute particulars, that we cannot pretend to give even an abstract. The following extracts will perhaps suffice:—

	Man.	Salf.	Bury.	Duc.	St. B.	Ash.
No. of persons inhabiting houses	94,250	31,693	..	6896	12,345	14,604
Ditto rooms	9,351	3,132	..	224	670	627
Ditto boarding	9,671	2,831	..	..	..	..
Ditto cellars	14,794	3,310	..	32	56	59
Do. who can read or write	60,185	21,853	..	..	..	..
Ditto read & write	..	..	3909	2380	4,484	4,723
Ditto read only	..	..	4579	2112	4,188	4,834
Persons belonging to the Church of England:—						
Heads of Families	14,517	5,525	1924	415	769	1,517
Lodgers, &c.	4,730	1,828	215	94	95	213
Protestant Dissenters:—						
Heads of Families	7,240	1,963	893	545	917	624
Lodgers	2,146	442	72	99	169	139
Roman Catholics:—						
Heads of Families	4,569	695	105	50	455	399
Lodgers	1,712	260	34	46	436	290
Jews:—						
Heads of Families	26	5	..	..	..	..
Lodgers	16	4	..	..	..	..
No religious profession:—						
Heads of Families	1,834	1,350	79	680	1174	1295
Lodgers	967	330	41	269	588	584

Average number of each family was rather more than 4½ in the four latter boroughs, and in many there were three, four, five, and, in some instances, six persons to each bed. The houses examined were all under 25*l.* a-year. From these tables it appeared that the number of persons living in cellars in Manchester was 11¾ per cent of the whole population; in Salford, 8 per cent. At the suggestion of Mr. Gregg,

Mr. Langton, of Manchester, read a statement respecting Liverpool; from which it appeared, that in the parish, or old borough, there were 6506 cellars, 1964 courts, and 25,732 dwelling-houses, for a population of 190,000: in the outskirts, 6364 houses, 987 cellars, and 307 courts; population, 40,000. Few of the courts possess any outlets, and of the cellars, the greater proportion are dark, damp, and without ventilation. The average was four persons to each cellar, giving a total of 30,000 occupants of cellars out of a population of 230,000; and it was estimated that two-thirds of the population belonged to the working classes.

Mr. Gregg stated, that in Manchester 64 per cent belonged to the working population; in Salford, 74 per cent; in Bury, 71 per cent; in Duckinfield, 94 per cent; in Staly-bridge, 90 per cent; and in Ashton, 81 per cent. He concluded by expressing a hope that this sort of inquiry should be extended throughout the country, as nothing for the permanent improvement of the condition of the poor could be done without it.

Mr. Wyse expressed a similar hope, and concluded by moving a vote of thanks to Mr. Gregg, which was seconded by Mr. Falkner, and carried unanimously.

A very long and animated discussion ensued. The first point on which a question was raised, was the number of persons set down as making no religious profession, Mr. Adam Hodgson and Mr. Rathbone both doubting its accuracy. From the explanations given, it appeared that most of the persons so classified had not described themselves as having no religion, but had declined giving any answers to the agents on that point.

Dr. Carpenter ascribed the superior condition of the working classes in Birmingham to the fact that they had proper dwelling-houses—no inhabited cellars, and no courts of the description mentioned as existing in Liverpool.

Colonel Sykes thought it exceedingly desirable that tables of the comparative mortality in cellars should be prepared. In Birmingham, the rate of mortality was one in fifty-five; in Liverpool, it was considerably more: and this might arise from there being inhabited cellars in the one place and none in the other.

Mr. H. Ashworth stated, that the condition of the working population in the neighbourhood of Bolton had been considerably improved, in consequence of houses of a better sort having been erected for their accommodation. So great was the desire to obtain houses of this sort, that, whenever one fell vacant, there were twenty applications for it.

Mr. Wood mentioned a plan adopted by a factory owner of his, in the neighbourhood of Bolton, with the best effects. It was this:—The gentleman built houses for his workmen, who agreed that a certain sum should be stopped out of their earnings; and thus, ultimately, the houses became their own property.

Mr. Ashton, of Hyde, stated that he had built three hundred houses for his workpeople, calculated for their proper accommodation, on something like the same plan. The result was, that the people formed local attachments, and, during a period of thirty-seven years, they had only one turn-out of a week's duration. The cost of the deed of conveyance, which was ordinarily 50*l.* on a house not worth more than that sum, was mentioned as an objection to this plan; and the hardship was represented as the greater, inasmuch as property of another description might be transferred, to the value of 1000*l.*, by simple endorsement, without any cost whatever. Several gentlemen, amongst whom was Mr. Slaney, strongly urged the necessity of legislative interference.

Mr. Shuttleworth stated, that the agent for the Duke of Norfolk's property at Glossop-dale had informed him, that the houses were almost entirely occupied by operatives, who were the owners of their own dwellings. The agent had also stated, that the facilities in this respect had not only greatly improved the moral and intellectual character of the community, but also been the most efficient means to increase the value of the property that could be adopted.

Mr. Ashworth mentioned a singular fact, in corroboration of these views. Several years ago, a fire broke out in a mill belonging to Mr. Kirkman Finlay, in Ayrshire. It was put out by the zealous exertions of the people employed at the mill, who had comfortable dwellings in the immediate neighbourhood. Trusting to this local attachment, Mr. Finlay had since discontinued the insurance of his mill.

Mr. Simpson thought the habitation of cellars a proper subject for legislative interference, as a matter of medical police. These cellars were generally the very hot-beds of infection and disease. He had been informed that the cellars were generally very damp, and that in one instance, where a man was lying ill of typhus fever, the water had to be baled out of the cellar before the doctor could enter.

Mr. John Finch stated that he had visited cellars in Liverpool which contained from twelve to seventeen inhabitants each. He stated that, at the last Kirkdale sessions, out of fifty-nine persons for trial, only two could read; and he contended, that ignorance was the great cause of crime, and drunkenness of ignorance.

Mr. Slaney, M.P. stated, that in some districts building clubs were established, the members contributing funds to raise houses, and, when erected, casting lots for the possession and occupation.

Mr. Birmingham, agent for the estates of Lord Clonbrock, in the county Galway, stated that houses comparatively comfortable had been provided for most of the tenants, at an expense of 5*l.* each to the landlord, and 10*l.* to the tenant. The mere furnishing of windows alone, by letting in light and air, promoted health and comfort, and produced habits of cleanliness, as the sight of the dirt generally produced a wish to remove it.

Mr. Wyse thought that a taste for proper dwellings would soon be introduced amongst the working classes, and that a course of industrial education, such as that pursued at Mr. Fellenberg's school, in Switzerland, would greatly promote the object in view.

Mr. John Smith thought that nothing could be of greater importance than to give the poor man a motive to be the holder of his own dwelling—a motive to be a little house-proud. This would greatly advance the cause of temperance, and improve both the moral and physical condition of the lower classes. He begged to call the attention of the Section to the neglect of humble domestic architecture, and recommended that means should be taken to devise a plan for obtaining the greatest possible amount of comfort and accommodation for a given sum. He had known the most lamentable effects to result from the want of proper divisions in houses; and also instances in which houses, containing all necessary accommodations had been built for the same sum as others which contained no proper accommodations whatever.

Mr. Slaney then read a long and valuable paper on the condition of the poor in large towns, founded on parliamentary returns and other official documents. From the amount of taxes on various articles in use by the rich and middling classes, which he enumerated, he concluded, that, within the last fifty years, a very great improvement had taken place in the condition of these classes, and also that considerable improvements had been effected in the condition of the agricultural population, in the twenty-six counties in which allowances had been made out of the poor-rates. He had returns from twelve of these counties, shewing that a reduction of 41 per cent had been effected in the rates, whilst, at the same time, the

condition of the peasantry had been most materially improved. He divided the working population of large towns into two classes, the skilled and unskilled artificer. The latter part of the population had increased in a most surprising manner as compared with the rest. Within a period of ten years, according to the returns of 1831, the increase in the whole kingdom was 16 per cent; in London, 20 per cent; and in Manchester, 47 per cent; in Glasgow, 38 per cent; Birmingham, 33 per cent; Leeds, 47 per cent; Liverpool, 44 per cent; being nearly 42 per cent on the five principal towns, or three times the increase in the whole kingdom, and four times that of many of the agricultural districts. He then read various returns as to the number of persons charged with offences, and committed in England and Wales, at various periods; shewing that, whilst the population had only increased 18 or 19 per cent in twelve years, crime had increased in the proportion of 90 per cent, or five times the rate of increase in the population. In 1835, the number of persons charged with offences was, in England and Wales, one in 619; in Bristol, one in 290; in Middlesex, one in 336; in Lancashire, one in 481; in Cheshire, one in 492; in Anglesey, one in 8000. The quantity of ardent spirits consumed in the United Kingdom, in the year 1817, was 9,200,000 gallons; in 1827, 18,200,000; in 1836, 26,745,000 gallons. In other words, whilst the population had only increased 33 per cent in twenty years, the consumption of ardent spirits had been trebled within the same period. Ardent spirits were consumed principally, if not entirely, by the inhabitants of the densely populated towns. The increase was, therefore, of a most alarming nature. Taking the whole kingdom, the proportion of spirits consumed was, in 1820, one gallon to each inhabitant annually; in 1833, one gallon and a half. This was referrable to the whole kingdom; but, when it was considered that the drinking population was condensed in the large towns, the increase was, indeed, alarming. From all these facts, Mr. Slaney inferred the absolute necessity of doing something towards the amelioration of the condition of the working classes, and improving their character.

Mr. Felkins, of Nottingham, also read a long and valuable paper respecting the condition of persons employed in the lace and hosiery trades in that town; of whom 4407 were thrown out of employment during the late commercial crisis. One most important fact detailed in the report was, that, out of 1043 persons who had never received parochial relief, and whose circumstances had been particularly inquired into, only one in four belonged to any benefit society. The inference drawn by Mr. Felkins was, that no increase in the rate of wages would permanently benefit the working classes, unless the proper appropriation as well as the rate of wages were attended to.

Several gentlemen spoke highly of the value of this paper, and suggested that it ought to be published for general circulation amongst the working classes. It was observed, that this might readily be accomplished by subscription; and, before the meeting broke up, it was announced that one thousand copies had been subscribed for.

Mr. Langton stated, that in Manchester large sums had been drawn out of the Savings' Banks during the late pressure,—a convincing proof that those institutions had answered; whilst a great majority of the Friendly Societies did not come within the rules prescribed by act of parliament, and were, in fact, mere impositions on the working classes; many of them, by their regulations, expressly contemplating bankruptcy.

SECTION G.—*List of Subjects.*

1. Mr. West—Ventilation of Tunnels.
2. Mr. Musket—On Iron for Railways.
3. Mr. Willis—On the Teeth of Wheels.
4. Mr. Currie—On Safety Railways.
5. Dr. Lardner—On Steam Navigation.

Mr. Russell commenced the proceedings with further observations 'On Tide-Waves, &c. in rivers.' Having once determined that the tidal wave was propagated according to the laws which regulate the propagation of other waves, it was in our power to modify the propagation of the tidal wave in rivers, so as to make it conduce to the better navigation of those rivers. The tide might be made to reach an inland port earlier; it might be made to extend to a much greater length towards the source of a river; it might be brought in in a larger volume, and retained for a longer period in the channel. These were effects of the highest commercial value, and of great importance to the welfare of the community, and he should now describe the means by which they were to be accomplished.

Mr. West read the paper 'On the Ventilation of Tunnels.' Mr. West had, it appears, made a series of experiments within the tunnel at the terminus of the Leeds and Selby Railway. The result of these experiments is an opinion, that when a number of shafts are carried down into a tunnel, the current of air escapes up the first of them; and that, even on days when there is no perceptible motion in the atmosphere, there is decidedly a current of air through tunnels, quite from the end into which this slight draught is directed.

Mr. Marshall gave the result of his experiments on railway iron. He described the several methods of refining and puddling iron now in use. His experiments had been directed to the ascertainment of the best method of preparing iron so as to resist the vibratory action on railroads, which causes the iron to exfoliate and laminate. He gave it as his opinion, that crystallised iron was improper; and that the iron used in railways should contain as great a quantity of fibre as possible. With this view he recommended the use of iron manufactured immediately from the pig-iron by rolling. Various specimens were produced, which were to be laid in the model-room for examination.

Mr. Willis communicated 'A New Mode of adapting the Teeth of Wheels, so as to cause Wheels of various Diameters to work truly.'

Mr. Currie made some remarks on a safety railway. His plan seemed to be to carry the rails over unequal surfaces on wooden platforms, instead of by embankments; but Dr. Robinson, the chairman, would not permit him to finish his explanations.

Dr. Lardner resumed his discourse 'On Steam Navigation to India and to the United States,' as noticed in our report of yesterday.

The ordinary was again excellently provided, Lord Sandon in the chair, who did its duty in a most agreeable style. Several entertaining addresses introduced the toasts; and M. de la Rive delivered a very eloquent tribute of thanks and compliments in return for the health of the distinguished foreigners present.

Mr. Snow Harris, at the Amphitheatre, delivered a most appropriate and striking lecture on the effects of lightning on shipping. It was greatly applauded.

MONDAY.—SECTION A.

Sir David Brewster gave an 'Account of a new Property of Light.' In this extempore communication, the author shewed that, when light, separated into its elements by refraction, was made to interfere and produce fringes by the retardation of a part of the pencil, the interference took place only when the least refrangible side of the retarded ray was next the most refrangible side of the direct ray. When the most refrangible side of the retarded ray was next the least refrangible side of the direct ray no interference took place. Various other phenomena, connected with this remarkable phenomenon, were described by the author; all of which tended to shew that they could only have their origin in a new property of light decomposed by refraction.

Mr. Whewell made some observations upon this communication, as if he conceived that the leading phenomenon could be explained by the doctrine of interference; but, in consequence of Sir David Brewster pointing out his misconception of the experiment, he withdrew his observations. Professor Steveley and Professor Lloyd regarded the new facts as inexplicable by the undulatory theory.

Sir David Brewster's paper 'On the Cause of the Structure developed in the Crystalline Lens by the Absorption of Distilled Water.' At the meeting of the Association at Bristol, the author had communicated an account of certain remarkable changes in the doubly refracting structure of the crystalline lens, which take place when it is immersed in distilled water. The lens expands by the absorption of the water, and the various structures of the lens are not only modified, but a new negative structure springs up in the dark neutral line between two positive structures. It seemed very strange that the mere absorption of water should create a new structure in a dead crystalline lens; but the author found that all the phenomena were owing to the production of a negative doubly refracting structure in each side of the capsule of the lens, in consequence of its being expanded by the absorbed water. This negative structure, of course, appeared in the dark neutral line unmodified, while it diminished the positive doubly refracting structure of the lens. The author proved, by direct experiment, that the extension of each face of the capsule was capable of producing a negative tint, equal in value to that developed in the experiments; and he shewed, how to produce the whole of the phenomena by combining the negative tints of a piece of circular glass with the crystalline lens. The author also pointed out to the Section, how these experiments led to a rational mode of curing cataract or opacity of the lens, whether it is the soft or the hard one.

Captain Denham exhibited to the Section an improvement in lighthouses. It consisted in using a coloured glass chimney for the Argand burner, in place of a large sheet of coloured glass placed on the mouth of the reflector. This contrivance seems to have been submitted to Mr. Faraday (as scientific adviser to the Trinity Board), who had pronounced an unfavourable opinion of it. Captain Denham's object in submitting it to the Section, seems to have been to obtain a more favourable judgment. Mr. Faraday stated very briefly to the meeting the objection which he had to the contrivance.

Sir David Brewster expressed his entire concurrence in the opinion of Mr. Faraday, and stated several additional objections to Capain Denham's contrivance. He remarked that, if the chimney of coloured glass should break, an accident to which it was peculiarly liable, from being close to the burner, the distinctive character of the light would be lost, and life and

property exposed to danger. In the experiment exhibited to the meeting, the red coloured glass chimney obviously gave a brighter light than when the mouth of the reflector was covered with a plate of red coloured glass, but Sir David Brewster shewed that the experiment was fallacious unless the chimney and the large plate were made of the very same glass, for if this was not done it was easy for the experimenter to throw the balance in favour of either one or other contrivance. When the large plate is used, the light is transmitted through it almost perpendicularly; whereas in the case of the red glass chimney, the light falls upon its inner surface at great obliquities, so that a great deal of it is thrown up the chimney by reflection, or utterly lost. Sir David Brewster called the attention of the Section to the fact that different red glasses absorbed different parts of the spectrum, some absorbing the orange, and others certain portions of the red space, and shewed that it requires a thorough knowledge of the absorptive action of different media upon light, to be able to select the proper coloured glass as the most suitable media for giving a distinctive character to our lighthouses. A person who did not possess this knowledge might use coloured glass which absorbed the most luminous and effective rays, and render it necessary to use twice or even thrice the number of red lights in order to give them the same range as the white ones. He states, also, that the atmosphere absorbs certain parts of the spectrum, and rendered white light red; and maintained that the best red glass for distinguishing lights, is that which derives its redness from absorbing the same rays as the atmosphere does, because its light being that which the atmosphere absorbs the least, will pass through it with the least loss. On the other hand, if we could put a glass which transmits only those rays which the atmosphere absorbs, all its red light would be obstructed by passing through the atmosphere.

SECTION C.

Captain H. M. Denham, R.N., Resident Marine Surveyor at the port of Liverpool, read a report, illustrated by plans, diagrams, and sections, and elucidated by verbal argument, 'On the Vertical and Horizontal Capacity of the Mersey;' shewing the quantity of insoluble matter in suspension during each flood and ebb, with the predominant portion on the ebb, and consequent deposit in the bay of Liverpool; and shewing the curious coincidence of matter detected in transit, and measured at its lodgment. The trigonometrical plan embraced the two great estuaries, Mersey and Dee, with all the sands and channels in Liverpool, ranging over 105 square miles; *i.e.* as far out as where the cross set of the Irish Channel limits the deposit or undershelf of the banks. The diagram and section shewed the relative levels of high and low-water springs and heaps, the constant level applicable to both tides, the half-tide level, and the inclined plane of high-water surface between the head of the tidal water and at the embouchure. The several differences of high-water times every five miles from seaward, its hourly velocity, its whole transit and differences in vertical range, were minutely marked and explained; whilst the plan as minutely delineated the areas of each contracting or expanding section of the estuary. Thus, the Mersey, between its orifice at the Rock Lighthouse and Warrington Bridge, presents an area of 113,171,200 square yards, containing, at the full and change of the moon, 779,174,680, and, at her quarter-ing, 292,653,200; or the average quantum of 535,914,040 cubic yards of tidal water, which circulates to and fro four times every 24 hours, the flood occupying $5^h\ 20^m$ in rushing through the straits (or neck of the bottle which the entrance straits is to the expansive space within), at a maximum rate of $6\frac{3}{4}$ miles per hour, equal to $23\frac{3}{4}$ transitu; the ebb occupying $6^h\ 30^m$ in disgorging itself, and the freshes, at a maximum rate of 7 miles per hour, equal to $29\frac{1}{4}$ transitu: the greatest impetus of flood attained at 3 hours' flow; that of the ebb at 2 hours' egress. The various courses of these tides were distinctly delineated, exhibiting at one view the points of deflexion, consequent eddies and deposit, and the channels created by incidence and reflection of its set. Had Captain Denham's communication been confined to the results of such close and elaborate observations on so formidable a column of tidal action as 32 feet affords, it would have been a valuable treat to the Association; but he proceeded to shew how possible it is to detect the amount of silt, &c. held in solution during each tidal journey. He presented for inspection his simple and effective "valve-bucket," which enables him to bring up a sample of the rushing water at any given depth from the surface, without its mixing with any of the intermediate water. And by extensive series of such at every half-hour, flood and ebb, and at depths from 6 to 30 feet below the surface, each series being carefully analysed, so as to produce not only the quantity but the quality, or component part of sediment, amounting to 29 cubic inches on the flood, and 33 inches on the ebb, in every cubic yard of tidal water,—equal to 330,989 cubic yards on each flood, and 379,054 upon each ebb, evincing a preponderance of matter, and left in the bay, upon each ebb, equal to 48,065. A diurnal deposit, that, in tidal rotation of 730 refluxes, amounts to the vast bulk of 35,087,450 cubic yards, which, if equally disseminated over the first ebb-range (64 square miles), would produce an annual layer of 21 inches thick. It, however, is not wholly detained over the first region; for the succeeding ebb sweeps one-third off before it adheres over the secondary range of 41 square miles, in the water of which a proportion of one-third is found suspended; and, as that which adheres as a substratum in the primary region, diminishes one half in bulk under consolidation, the actual bulk measurable is 11,695,817 cubic yards annually,—equal to a layer, if equally spread, of 7 inches. But it is not equally disposed of; certain knowls, margins, and spits of the banks are fed, and these intercepting protuberances elongate after attaining a certain height, thus forming fresh underlays for succeeding banks; and hence the sportive disposition of the channels; an instance of which was remarkably evidenced on the author's developement of the new channel, it being found at right angles to the natural and actual course of tide; which course had been so impeded towards the last part of ebb, by the deposit of matter where the first impetus became slackened, that the vast column, not having power, as it were, to leap the growing banks, turned short off through the most pervious part of the bank, hitherto forming a lateral margin to the main channel, but actually scoured, between 1822 and 1832, a new channel of 22 feet depth, of half a mile wide, and one mile long, through sands which, in the interim, had been above water. It is to watching changes that may alike interrupt as facilitate the avenues to this vast commercial port, that Captain Denham's attention is devoted. This is what we call, in a naval officer, being essentially useful in peace as well as war. How far he blends practical results with scientific research and arrangement, will be manifest in the satisfactory coincidence of results which no longer allows the analysation of passing streams to be hypothetical; for, whilst he shewed in detail that the cubical accumulation and increase of the banks in Liverpool Bay, in the last 14 years, amounted to 160,170,968 yards, he proves the matter detected in transit to be, in the same interval, 151,741,438, leaving 8,429,558 cubic yards as the undetectable portion resulting from the chance deposits of rubbish, unusual freshes, and what the Helbre Smack branch of the Dee sends forth into the Mersey range of the bay, but not through its embouchure. Thus may embouchure observations of every river anticipate the amount of matter transferred from inland valleys to the maritime avenues; but how it is actually disposed of, remains for the marine surveyor to ascertain and portray; and Captain Denham has so mapped it, and arranged his 17 shore and floating lights, landmarks, and beacons, with 58 buoys, that, out of 29,000 vessels entering the port in the last two years, but 19 got into difficulties. And such is the navigable facility now, compared with that of 1832, that her Majesty's packets (whose time of sailing is precisely at low water spring-tides) have gone direct to sea with passengers and mail, with less than thirty instances of transfer by smaller vessels; which delay and miserable inconvenience to passengers amounted to 236 cases in a year. The liberal assistance which Captain Denham acknowledges, so much to the honour of the dock trustees of the port, which has enabled him to render every avenue available at earliest tide,—the new channel having passed 8208 vessels in 1836, 4077 of which would otherwise have been detained six hours at the back of the sands,—carry a requital to the members of the committee; exceeded, however, in pillowed gratification, by the successful duties of the life-boat establishments, under the gallant captain's directions, from Point of Air to Formby, to which is appropriated nearly 1000*l.* per annum by the dock trust, in addition to the 12,000*l.* a-year expended on the pilot waters of their great port, whereby, out of the combined crews of 72 persons, 66 were rescued by the life-boats in the last two years; thus uniting, as it should, humane solicitude with mercantile anxiety. We have given, in the foregoing, as much verbatim report as possible of Captain Denham's address and statement, sparing our readers those detailed calculations and reference to local ground, so highly essential on the spot. He concluded by anticipating an exclamation that, if the deposit went on at the rate quoted, a period might be predicted when the Mersey could not command a ship channel with the ocean. It therefore behoved him to state that, although man could not command the descent of rain, and consequent scouring of valleys and turbidness of the river, yet, on his powers of limiting the tidal boundaries of the estuary, depended the existence of that reflux-impetus at its orifice, which will force the under-water shelves, and a channel through them some where, even to the 14 miles cross linear set of the Irish Sea. But, diminish the back water of the estuary by the slightest displacement of tidal reception which, for want of conservancy guardianship, has been going on, and the port is ruined. Surely, as the noble president, the Marquess of Northampton, Professor Sedgwick, M. De la Beche, Mr. Griffiths, and Mr. Greenough, exclaimed—

"No one will now dispute an appointment of Mersey conservators after this."

SECTION G.

In Mr. Russell's first communication, after the explanations of the theoretical principles, and the experiments which formed the basis of his deductions, he proceeded to explain the means by which the navigation of rivers might be facilitated. These means were, the dimensions and form of the channel, and the form of the vessel. To remove the impediment arising from the resistance of the great anterior wave, the depth of the channel should be, as far as possible, increased; this was far more important than any increase of width, no greater width being necessary than would allow the vessels to pass each other with ease and security. Next in point of importance to facilitating the progress of the vessel through the water, was the prevention of the injury done to the banks of the channel by the great posterior breaking surge which follows a vessel and tears down the embankments. This would be diminished, to a certain extent, by the increase of depth, but the evil would be still further remedied by giving to the sides of the channel a proper form. Now, it appeared from the experimental investigations that had been instituted for the determination of this point, that sides, as nearly vertical as possible, were much better than the sloping sides generally adopted, so that a channel as nearly rectangular as possible, would not only remedy these evils, but coincide with the principle of greatest depth previously recommended. A third phenomenon attending the motion of steam vessels, was the wave of excessive displacement. It was this which might be observed rising with a crest of foam at the bow of the vessel when moving with considerable velocity, and, passing outwards past the projecting angle of the paddle-box, might be traced by the eye extending in two straight lines divergent from the bow at a determinate angle. This wave extended its action to a very great distance, and travelled with a velocity of not more than six miles an hour; its effect on small vessels was very considerable, frequently swamping them; upon the shore, it formed a sharp cutting wave, highly destructive to the banks. This wave could be altogether removed. It took its origin in the form of the vessel, and might be removed by proper means applied to that purpose. It arose from the circumstance of the form of the vessel imparting motion to a greater volume of water than was absolutely required for permitting the passage of the vessel. Mr. Russell had seen the wave very much diminished by adopting a certain course in the formation of the vessel, which he described. In two cases, one that of a steam vessel, and the other that of a vessel not moved by steam, he had found that, by the adoption of that course, this injurious result had been entirely removed. Thus he had shewn the means by which the impediments to the acceleration of the motion of steam vessels in confined channels might be removed, and the evils resulting from their use considerably alleviated or completely removed.

TUESDAY.—SECTION A.

The communication of Mr. Russell consisted of 'a Report from the Committee on Waves,' which had been appointed at the last meeting of the Association, and consisted of Mr. Robinson, the secretary of the Royal Society of Edinburgh, and himself. Their duties had been to continue an investigation into the 'Laws of Motion of Waves, and the Nature of the Mechanism of their Propagation,' in which Mr. Russell had previously been extensively engaged; and, also, to extend their investigation to the 'Principles of Propagation of the Tidal Waves, and the manner in which it is affected by the Dimensions and Form of the Channel, and examine the Effect of the Wind upon the Velocity and Height of the Tide.' An extensive series of experiments had been made upon the mechanism of waves, and the laws of their propagation in channels of different forms. These waves had been generated by different means; by addition of a fluid, by addition of a solid, by protrusion and by impulsion; and it was found that the velocity of the wave, was independent of the mode of generation. This was the great primary wave of translation. Its velocity was that done by gravity, half the depth of the fluid. Its mechanism was peculiar; it affected, simultaneously, the whole breadth of the fluid; its effects were equal throughout the whole depth; the velocity of translation was totally different from the velocity of the wave itself that produced the translation. Its velocity in a given form of channel was determined by a simple process of integration, from considering each element of breadth as moving with the velocity due to half its depth; and this simple law enabled us to determine the velocity of the wave in any channel however irregular. Now, it was found by the observations, that the velocity of the tidal wave, when it became affected by the shores and elements of shallow water, followed exactly the same law. An extensive series of observations had been attained on the river Dee, near Chester, and on the application of Sir Thomas Brisbane, a former president of the Association, privileges had been obtained from the trustees of the river Clyde, which enabled a series of observations most valuable to commerce and to science to be obtained on that river. These led to most satisfactory results. The effect of the wind on the tide had been satisfactorily determined. These had been doubted by M. Daussy, but the results obtained by Mr. Lubbock had been confirmed.

SECTION C.

Mr. Faraday occupied the twenty minutes allowed him for the report of what had been done by the annual notices, first, in reading the titles of the communications in the order in which they had been taken; and, after presenting the book of proceedings to the president, next in making a few observations on some of the papers; not so much for the purpose of marking the communications of highest value, as to shew to those members of the Association, not conversant in chemical science, that all parts of that extensive branch of knowledge had been brought before the section. Then, with regard to the means of experimenting, he referred to the display of improved and cheap apparatus made by Mr. Griffin, of Glasgow, and spoke highly of the value of such means for facilitating chemical research. With respect to the investigation of the analogies of bodies, and their right place in any philosophical order of arrangement, he referred to the report on the constitution of salts, made by Professor Graham, in which the new view taken of the nature and action of water, and the analogies of saline bases, one with another, were clearly set forth. As an illustration of the practical results which had come before the section, he quoted Dr. Thomson's report on the analysis of iron obtained by the hot and the cold blast; and also the results obtained by Mr. Hartley, of the preservation of cast and wrought iron when exposed to sea water. He finally remarked upon the communication made to the Section by Leeling, in which that philosopher described the means by which he had been able to produce, by artificial methods, a body (allaritoin) which heretofore had been found only in organic processes, and by the living being; this being the second substance only which, amongst the many formed by the powers of life, has been now produced by artificial means. He concluded by a strong exhortation, in the words of Leeling, to British chemists to pursue organic analysis, a branch of the science hitherto much neglected in this country.

EUPHRATES EXPEDITION.

We regret to have received, too late for notice this week, the *Copy of Instructions to Colonel Chesney, &c.*, printed by order of the House of Commons. We observe that it contains the most satisfactory report that has yet been presented to the public, of the progress and labours of that expedition which has suffered so much for want of publicity; and we propose to ourselves, next week, to give some lengthened details concerning an enterprise we have always felt so much interest in.

FINE ARTS.

NEW PIGMENT.

The following is the substance of a communication made by Mr. Brockedon, on a new pigment, to the Society of Arts. The author states that for many years he had been in the practice of using as a pigment the black oxide of manganese; which possesses some most advantageous qualities, particularly those of great body, and an extraordinary readiness to dry. It was originally obtained from the mammillated ore; subsequently it was procured from an oil and colour-house: it is a dark iron gray. A very small quantity will stain a large volume of white; and alone, even when very thin, it will completely obscure light objects beneath it. But its most valuable quality to the artist is its rapid tendency to dry; even when ground in cold-drawn linseed oil, only a few hours are necessary for its hardening. Within these two or three years, however, a new variety of this colour has been introduced from Ireland, being found at Cappah, near Cork, on the estates of Lord Audley; this colour is composed of peat (the material of Vandyke brown) and manganese; the presence of the former greatly enriches the colour. In water-colour it is more intense and beautiful than Vandyke brown, and differs from it in having a greenish brown cast of great richness. For facility of working on paper it is unmatched; but in oil it is still more valuable, because it has the brilliancy and depth of asphaltum, with the quality of drying in a few hours, an advantage of great importance to an artist when he is painting a deep-toned picture, and pressed for time. Both in oil and in water these colours are so essential to Mr. Brockedon, that he says he would now rather discard any single colour that he is acquainted with. But it is not for these finer purposes that the Cappah brown is particularly useful; the West Cork Mining Company have introduced it in large quantities. The consumption of it for art is a mere trifle; for shipping and house painting, however, no colour equal to it has yet been found in depth, richness, and durability. In some cases attempts have been made, by washing it over, to obtain from it two or three different colours, which have been brought into the market under the name of euchrome. To these the remarks in this communication do

not apply, but to the entire substance, without any preparation, except that of grinding.

NEW PUBLICATIONS.

Kay's Works; chiefly Edinburgh Portraits: being Original Engravings of about four hundred various Personages. By John Kay. With Biographical Sketches. In Monthly Parts. Part I. Paton, Edinburgh; Smith, Elder, and Co. London.

Kay, although, technically and professionally speaking, he had little claim to the name of an artist, possessed a very happy facility in discovering the various peculiarities of character, as evinced in the human face and figure, and in transmitting them to paper in so faithful and forcible a manner, that it was impossible to mistake the individuals on whom he exercised this his native and original talent. Kay lived at a fortunate period. To use the words of an able northern contemporary,*—"It was an age of transition. Refinement was struggling to gain the ascendency in a society hitherto composed of feudal barbarism and rude slovenliness, such as we find depicted in the cottagers of Glenburnie, or in Matthew Bramble's account of Edinburgh. The Scottish capital was, moreover, a point to which many noble, and wealthy, and learned, were attracted; but which, having ceased to be the seat of government, had become a rich soil for the growth of humorists. Literature and science were then in their first luxuriant burst; there were Cullen, and Black, and Adam Smith, and Robertson, and Monboddo, and Kames, and Gregory. Along with these sprouted up a plentiful supply of quacks, such as Brown and Graham. The beggars and idiots of those days had an originality of character, and an independence of demeanour which has vanished beneath the influence of mendicity societies. Lastly, all classes of society were then in a manner closely packed up in the Old Town, not diffused through the wide expanse of the New. Edinburgh was one great carnival from one end of the year to the other; and almost all the characters were supported with the unction of genius. This strange masquerade has been immortalised in three hundred and fifty-six engravings by the kindred genius of Kay." The present number comprehends nine highly amusing plates; most of them containing several portraits. Those of Lord Monboddo, Lord Kames, and Lord Gardenstone, are especially interesting. We will take an early opportunity of adverting to the "Biographical Sketches" in another part of our publication.

Portrait of the Right Hon. Joseph Planta, G.C.H. and M.P. Drawn by J. R. Lane, from a Sketch by J. Slater. Arundale.

Slight, but tasteful.

* Scottish Monthly Magazine.

ORIGINAL POETRY.

THE QUEEN!

Written on seeing Chalon's magnificent Portrait of her Majesty.

Brave banners of England, your garlands revealing,
Wave high in the sunlight of freedom serene;
And come, every heart, with the warm spring of feeling,
Bid Loyalty's voice glad the throne of your Queen!
That brow which the crown of Britannia enwreaths,
Shines pure as the day-star of beauty and truth;
And where is the form that such dignity breathes,
So blended with grace and the sweetness of youth?

Then, maidens of England, shed roses around;
Bring laurels, ye brave, let your spirit be seen;
Whilst the song of a nation ascends from the ground—
Victoria for England, and God bless the Queen!

May Wisdom sit firm in her councils—and still
May the Angel of Mercy descend on her laws:
Whilst the bold sword of Britain springs forth at her will,
In defence of the right, and for Liberty's cause!
Oh! ne'er may a shadow her destiny dim;
But the wing of the dove with the eagle extend;
And defeat, and the world's execration on him
Who a pang to that breast for a moment would lend!

Then, maidens of England, shed roses around;
Bring laurels, ye brave, let your spirit be seen;
Whilst the song of a nation ascends from the ground—
Victoria for England, and God bless the Queen!

C. Swain.

BIOGRAPHY.

DR. RITCHIE.

It was with much regret that in our last No. we announced the death of this able and distinguished individual at Portobello, on the 15th, after a short illness. It was but a few weeks ago that, in perfect health, he promised a meeting at the British Association in Liverpool: and upon the last day of its active operations he was a lifeless corpse. For real and practical knowledge, Dr. Ritchie had no superior in that assemblage. In various sciences he was intimately skilled, and his general intelligence very nearly embraced the whole circle of the ingenious and useful. As a professor of the London University, and a lecturer at the Royal Institution, he was highly appreciated, for few men had more information to communicate. His reading and writing on scientific subjects, were extensive; and we remember at the Dublin and Bristol Meetings, how impossible it was, in his presence, to bring forward any of those *novelties* which happened to have been previously made known either at home or abroad. Dr. Ritchie was in the prime of life; and his loss will not readily be supplied by equal industry, activity, zeal, and talent.

DR. UWINS.

On Friday, the 22d instant, this gentleman died, in his 57th year. He was decidedly a man of talent and originality; but his manner and address were very singular, and, indeed, bordered closely on eccentricity. His pen first brought him into notice, as a contributor to several of the magazines and reviews. He afterwards published treatises on Indigestion, on the Brain, and Nervous System, and on the Theory and Practice of Medicine. His last work was a pamphlet on Homœopathy, in which he defended the doctrines of Hahnemann. This did him considerable injury, both with the public and with the members of the medical profession. Dr. Uwins held many peculiar opinions; for some of which he endured undeserved ridicule: among them, that all mankind had a touch of madness, although the propensity remained latent until any circumstance occurred to bring it forth; when it exhibited itself in some one of its various melancholy shapes.

SKETCHES.

A CHAPTER OF ACCIDENTS.

"Go it, ye cripples!"—*Slang Vade mecum.*

One *dolce far niente* day, such a one as at this present writing, I sat at a window of the North and South American Coffee-house, in Threadneedle Street—the aorta, as it were, springing from the ever-pulsating heart of London; the two ventricles of which may not be inaptly considered the Royal Exchange, with its daily buzz, and the Bank of England, with its bullion and bags of pelf. Sitting as above, I was struck by the appearance of three poor cripple gentlemen, who were following each other in the throng. I sympathised with them, and resolved to sit still where I was for two or three hours, and note the halt and maimed who passed that way. I did so from noon till three o'clock, P. M.—the busiest part of the day, doubtless, and this the busiest part of the metropolis. The number was frightfully large. No one but a cripple has the least idea of the vast numbers of persons so afflicted in this great town. There is the gun-shot wound, with his ridiculous walk—something between a jerk and a hop, or rather a succession of both:—a fine looking fellow still, and one who, at this season of the year, never failed to go to the moors. His femoral artery was seriously injured by canister-shot; and, though eminent surgeons believe that such an accident, even where the bone is untouched, demands amputation, the vessel above and below the wound was tied, and the leg saved. There! see that poor fellow, undulating like an S, still trying to look big and *dégagé*; he slipped on a piece of orange-rind and fractured the neck of his thigh-bone! All cripples fraternise. Suppose that two meet, with only a left leg left a-piece—(though literally correct, it would be cruel to say that they had lost the *right* one)—they will look at each other, nod, then smile; and, if suffering have not chilled the genial current of the soul, a tankard of ale, at the next tavern, is quaffed to the memory of absent members. Nor are these *agrémens* confined to the poorer or middling ranks of cripples: "a fellow-feeling makes us wondrous kind." Actuated thus, I sometimes take a "ride" up the river to Chelsea, and sometimes down to Greenwich Hospital, to have a gossip with the placemen and pensioned cripples there. My ancient friend, Tom Bowles, of the latter, at one fell swoop, by a chain-shot, lost his nether extremities, mid-thigh, thirty years ago. Some men, we learn from the "Principles of Military Surgery," will have a limb carried off, or shattered to pieces, by a cannon-ball, without exhibiting the slightest symptoms of mental or corporeal agitation; nay, even without being conscious of the occurrence; and, when they are, they will quietly argue on the probable result of the injury. Cool as a cucumber, this was Tom Bowles's case; but he never hears of "hunting in couples" (alluding to the chain-shot) without a shriek. Tom lost sight of his precious limbs, as he calls them, in the hurly-burly of the battle—very likely they were kicked overboard; but, though he and his legs have parted fellowship so long ago, on every change of the weather he complains of a pain in his toes! Tell us, ye sons of Æsculapius! why is this? Does it arise from sympathy, or nervous irritation, or both? Tom was not treated bunglingly after the operation, as he facetiously alludes to the chain-shot; but amputation at that time was followed by the painful process of searing the severed nerves and arteries, which frequently left post-mortem pain, if the phrase be allowed in the present case. I have heard that tic douleureux, which occasions a noble and gallant soldier so much annoyance, is, in some degree, to be attributed to his having lost a leg at the last of England's battles. From a mass of scientific memoranda

I have obtained during past years, at sources not generally open to the public, I find that the acetate of morphine, in minute quantities, applied to the superficies of the neighbouring parts, produces instant and—(I think I have a mark on my notes for the word)—*permanent* relief in cases of this painful class; but, as I am not a professor of the healing art, I do no more here than quote my memorandum. At Chelsea, once, I saw a cripple beggarman; he was not a military cripple; but the brotherly feeling to which I have already alluded, frequently made him go a-begging about Chelsea. The day was nipping cold; Chelsea, too, is always cold; its name importeth cold, being derived from the old Saxon word *Chelchyth*; in addition to this, an easterly wind—that terror of cripples—was blowing violently. With pitiable looks he drew himself up to the open window of a little shop; behind the aperture sat a she-dragon, and, though the apples she cared for were not those of Hesperides, yet were they guarded as vigilantly. The beggar had been in the habit of getting a few *oboli* from the pensioners; he had not, however, that day: poverty and the east wind were piercing him to the bones. With looks full of meaning, and which, though mute, spoke eloquently, he tried to propitiate the savage. He succeeded; for I saw her long and tawny arm reach forward to a basket. Already had the cripple's parched lip, in idea, been refreshed by the scanty juices of the shrivelled dainties before him—alas, no! With a community of feeling, she laid her hand upon a tray containing pieces of flint, and presented the beggar with a shiver of it! It was too small to strike a light; it was destitute even of the pseudo-nourishment of a bit of lead thrown into the mouth. I thought I heard the beggar exclaim, "I asked for bread, and ye gave me a stone." One evening, at the opera house, I sat behind a party of ladies; one of them was exceedingly beautiful—if she were not too pale and interesting. Until that evening I had never seen her. She paid great attention to the opera, and appeared to be perfectly delighted. When the ballet came, she averted her head. The graceful attitudinising of Elsler, the cachouca of Duvernay, and the merry *pas* of little Montessu, to say nothing of Saxoni, and the other male dancers, never once made her turn a look to the stage. As she was retiring, at the close, I saw she was—"a cripple."

DRAMA.

BENEFITS have been the order of the day—night—during the week. Miss Rainforth's on Monday, and Mr. Peake's on Thursday, drew bumpers to the *English Opera House*; and Miss Allison was equally successful at the *Haymarket*, on the latter evening.

The *Adelphi*, *Olympic*, and *St. James's*, commenced their season last night, and *Covent Garden* opens this evening. Each and all of these theatres retain most of the old favourites, but many new faces have been added to the different companies. At the *Adelphi*, Power is a first appearance; Mr. Farren and Mrs. Keeley make their first bows to an *Olympic* audience; at the *St. James's*, a gentleman of the name of Leoni, of whom report speaks highly, makes his *début* shortly; and the additions at *Covent Garden* are many and judicious.

VARIETIES.

Going the whole Hog.—In the midst of a crowd of persons, slowly making their way into a place of public entertainment, a remarkably corpulent gentleman, who was closely following a fine girl, amused himself by certain tender squeezes, and amatory whispers, which, at length, so annoyed the fair one, that, turning her head round as far as the circumstances of the case would admit, she exclaimed, with great sharpness of tone, "Be quiet, sir! I wish you would leave me alone." "Very well, my dear," said her plump persecutor; "but, pray, don't *eat* me." "You are in no danger," replied the nymph; "I am a Jewess."

Triumvirate of Booksellers.—Three individuals at this moment have almost monopolised the bookselling trade in Germany. The most powerful of these is Baron Cotta, the proprietor of the "Allgemeine Zeitung." Baron Cotta is likewise the proprietor of six literary periodicals, of a high standing, and of several others of an inferior rank, and is said to have from 300 to 400 editors in his pay. He is proprietor of the copyright of all the works of Goëthe, Schiller, Herder, and Uhland. The second of these literary grandees is Reimer, of Berlin, who owns the copyright of all the works of Jean Paul, Tiek, Kleist, Johannes Von Müller, Novalis, and Schlegel. The third is Brockhause, of Leipsic, proprietor of the "Conversations Lexicon," which alone occupies more than 100 literary men. Brockhause is likewise the publisher of a most colossal encyclopædia, which, when finished, will consist of at least 200 volumes; and he is now on the point of undertaking the publication of a new daily paper.—*German Journals.*

Weather Wisdom.—The predictions for the past week have not been very successful: we try again. "This month opens with a number of aspects, which shew there will be much heavy rain, with storms of wind, hail, and thunder. About the 3d and 4th, we may expect flooding rains. The 5th and 6th stormy."

Professor Müller.—We understand that this distinguished physiologist of Berlin, is at present in London, on a visit of scientific research; and that a portrait of him will shortly appear from the pencil of the artist to whom the public are indebted for the spirited and faithful likeness of Tiedemann.

Egyptian Antiquities.—Col. Vyse, who has been for some time employed in exploring the antiquities of Egypt, at the pyramids, and the surrounding country, is stated to be on his return home, with an accumulation of very novel and valuable acquisitions.

LITERARY NOVELTIES.

A French Translation of Mrs. Somerville's admirable work "On the Connexion of the Physical Sciences," has just appeared in Paris, by a Madame Mulien, a Parisian lady devoted to the same pursuits as the accomplished authoress. That the task of translating what Madame Mulien justly calls, in her preface, "la belle et noble production d'une femme que ses talens placent d'une manière si remarquable au-desus de son sexe, et dont la juste célébrité honore l'Angleterre," has been ably executed, the name of M. Arago, under whose auspices the work appears, and by whom the whole was revised, is a sufficient guarantee: while this latter circumstance shews the high estimation in which the original is held by the French philosopher.

A new weekly publication is about to make its appearance in London, entitled, "La Mosaique Française; Recueil Hebdomadaire de Littérature, Sciences, Beaux Arts, &c." We wish it the success which, if the expectations held out in the prospectus be fulfilled, it will no doubt experience.

In the Press.

An Analytical View of all Religions, by Josiah Conder, Esq.—Holy Scripture Verified; or the Divine Authority of the Bible confirmed by an Appeal to Facts of Science, History, and Human Consciousness. By the Rev. G. Redford, LL.D. (being the Fifth Series of the Congregational Lecture).

LIST OF NEW BOOKS.

A Treatise on Operative Surgery, by W. P. Cocks, 8vo. 14*s.*, with 12 Plates.—Dr. W. Kramer on the Nature and Treatment of Diseases of the Ear, translated by J. R. Bennet, M.D., 8vo. 10*s.* 6*d.*—Goethe's Correspondence with a Child, 2 vols. post 8vo. 30*s.*—Journal of a Residence in Norway during the Years 1834, 1835, and 1836, by S. Laing, Esq., 2d edition, 8vo. 14*s.*—History of England, continued from Sir Jas. Mackintosh's, vol. VII. (forming vol. XCV. of Dr. Lardner's Cabinet Cyclopædia), f. cap 8vo. 6*s.*—Ernest Maltravers, by the Author of "Pelham," &c., 3 vols. post 8vo. 1*l.* 11*s.* 6*d.*—F. W. Krummacher's Glance into the Kingdom of Greece, 12mo. 2*s.* 6*d.*—H. Stalman's Treatise on the Law of Copyhold Property, 8vo. 8*s.*—W. Herbert's History of the Twelve Livery Companies, vol. II. 8vo. 1*l.* 8*s.*; ditto, large paper, 2*l.* 2*s.*—Pastoral Recollections, by a Presbyter, 18mo. 2*s.*—Jairus; or the Home Missionary, by the Rev. J. Young, 12mo. 3*s.* 6*d.*—A Winter at De Courcy Lodge, by Mrs. Bourne, 12mo. 3*s.* 6*d.*—The Philosophy of Health, by Southwood Smith, M.D., vol. II., 12mo. 7*s.*—The Works of Jacob Abbott, Complete, in 1 vol. 8vo. 12*s.*—H. Clutterbuck on Pyrexia, or Symptomatic Fever, 8vo. 5*s.*—R. D. Grainger on the Structure and Functions of the Spinal Cord, 8vo. 7*s.*—Letters to Brother John on Life, Health, and Disease, by Edward Johnson, 8vo. 7*s.*—Lodge's Genealogy of the Peerage, 6th edition, 8vo. 1*l.* 1*s.*—Lockhart's Life of Sir W. Scott, vol. V., post 8vo. 10*s.* 6*d.*—The Earldom Restored, by E. Lakeley, Gent., 2 vols. 12mo. 15*s.*—A Church of England Psalter, compiled by the Rev. H. Parish, 32mo. 2*s.* 6*d.*—An Exact Reprint of the Roman Index Expurgatorius, edited, with a Preface, by R. Gibbings, 12mo. 12*s.* 6*d.*—Rev. John Keble's Visitation Sermon, on Tradition, 3d edition, with additions, 8vo. 6*s.*—The Chemical Decompositions of the London Pharmacopœia, by J. Steggall, M.D. 12mo. 3*s.*—Celsi de Medicina Opera, edente et curante J. Steggall, M.D. 12mo. 7*s.*—Peter Parley's Short Stories for Long Nights, square 16mo. 2*s.*—Affection's Keepsake, 1838, 32mo. 2*s.* 6*d.*—Ethel Churchill; or, the Two Brides, by Miss Landon, 3 vols. post 8vo. 1*l.* 11*s.* 6*d.*—Roscoe's South Wales, royal 8vo. 48 Plates, 1*l.* 8*s.* 6*d.*; morocco, 1*l.* 15*s.*—Stories of Spanish Life, from the German of Huber, edited by Lieut.-Col. Craufurd, 2 vols. post 8vo. 1*l.* 1*s.*—The Life of Sir Edward Coke, by C. W. Johnson, 2 vols. 8vo. 1*l.* 8*s.*—Proceedings of the Zoological Society, part IV., 1836, 8vo. 6*s.*

METEOROLOGICAL JOURNAL, 1837.

September.	*Thermometer.*	*Barometer.*
Thursday.. 21	From 39 to 68	29·84 to 29·96
Friday 22	.... 39 .. 67	29·97 .. 29·99
Saturday .. 23	.... 41 .. 61	30·02 .. 30·07
Sunday 24	.... 35 .. 60	30·12 .. 30·19
Monday .. 25	.... 31 .. 60	30·21 .. Stat.
Tuesday .. 26	.... 30 .. 60	30·20 .. 30·12
Wednesday 27	.... 29 .. 60	30·06 .. 30·01

Wind, N.E.

Except the 27th, generally clear; a little rain on the 26th.

Rain fallen, ·0125 of an inch.

Edmonton. CHARLES HENRY ADAMS.

Latitude....51° 37′ 32″ N.

Longitude.. 3′ 51, W. of Greenwich.

Extracts from a Meteorological Register kept at High Wycombe, Bucks, by a Member of the Meteorological Society. August 1837.

Thermometer—Highest.....	82·00 ..	the 17th.
Lowest.....	37·50 ..	26th.
Mean.....	57·20161	
Barometer—Highest.....	30·13 ..	8th.
Lowest.....	29·14 ..	30th and
Mean.....	29·72892	[31st.

Number of days of rain, 11.

Quantity of rain, in inches and decimals, 3·15.

Winds.—4 North-East—3 East—3 South-East—4 South—6 South-West—4 West—3 North-West—4 North.

General Observations.—A greater quantity of rain fell during the month than in any August in the preceding seven years, and it all fell in eleven days; the quantities on the 26th and 29th were unusually great. The mean of the barometer was lower than in the same months in 1835 and 1836; but the maximum was higher than any in the last four years, and the range was small. The thermometer was higher than last year, as to the maximum and mean, although it did not reach the elevation of the corresponding months in 1834 and 1835. Lightning was seen on the 19th, and thunder heard on the 30th. On the 26th there was a heavy storm of thunder and lightning, from 11 A.M. until noon; one flash at half-past eleven was extremely vivid, and was followed by a tremendous clap of thunder; after which the storm abated.

TO CORRESPONDENTS.

G. is not sufficiently finished.

Mr. Fennell's paper is under consideration.

We will make use of R. E. J. hereafter.

Agnes is right.

ERRATUM.—In our last No. page 613, col. 3, l. 62, *for* imparted, *read* imparted.

ADVERTISEMENTS,
Connected with Literature and the Arts.

WILL be CLOSED on SATURDAY, the 14th October.—DIORAMA, REGENT'S PARK.—New Exhibition, representing the Interior of the Basilica of St. Paul, near Rome, before and after its Destruction by Fire; and the Village of Aiagna, in Piedmont, destroyed by an Avalanche. Both Pictures are painted by Le Chevalier Bouton.
Open daily, from Ten till Five.

Albemarle Street, Sept. 1, 1837.

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The extended and practical Course of Chemical Lectures and Demonstrations, for Medical and General Students, delivered in the Laboratory of this Institution, by Mr. Brande and Mr. Faraday, will commence on Tuesday, the 3d of October, at Nine in the Morning, and be continued on Tuesdays, Thursdays, and Saturdays, at the same Hour.
Two Courses are given during the Season, which will terminate in May.
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JOSEPH FINCHER, Assistant Secretary.

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Song of the Month
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The Autobiography of a Good Joke, with an Illustration by George Cruikshank
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THE FOREIGN QUARTERLY REVIEW, No. XXXIX. will be published October 1st.
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On Monday, the 2d of October, will be published,
THE PICTORIAL HISTORY of ENGLAND, Part VIII. price 2s. The Work is also published in Weekly Numbers, price 6d. each.
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